MARANTZ SD6020

MODEL

SERVICE MANUAL

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ Company has created the ultimate in stereo sound. Only original MARANTZ parts can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If, for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

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Phone orders will eliminate mail delays, and we encourage the use of this method. If you order by mail, use MARANTZ parts order forms which are available from our National Parts Depot located at the following address:

SUPERSCOPE NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate MARANTZ).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

OVERSEAS PARTS ORDERING

Parts may also be ordered from the following overseas addresses:

U.S.A.
Marantz Company, Inc.
National Service Dept.
P.O. Box 577
Chatsworth, CA 91311
U.S.A.

CANADA
Superscope Canada, Ltd.
3710 Nashua Drive
Mississauga
Ontario, Canada L4V1M5

AUSTRALIA
Marantz Australia
32 Cross Street
Brookvale, NSW 2100
Australia

JAPAN
Marantz Japan, Inc.
3622 Kamitsuruma
Sagamihara-shi
Kanagawa, Japan

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Marantz Europe S.A.
326 Avenue Louise Bte 32
1050 Brussels
Belgium

Marantz France
4 rue Bernard Palissy
92600 Asnieres
France

Marantz Audio U.K., Ltd.
193 London Road
Staines, Middlesex
United Kingdom

Marantz Germany GMBH
Max-Planck-Strasse 22
6072 Dreieich
West Germany

Marantz Belgium
45 rue Auguste Van Zande
1080 Brussels
Belgium

Marantz Svenska A.B.
Svartviksvägen 56
Traneberg
Box 12016
161 12 Bromma
Sweden

Marantz Norske A.S.
Refstadalleen 13
Oslo 5
Norway

Marantz Denmark
Bregnerødvej 132b
3460BIRKERØD
DENMARK

Marantz GMBH Austria
Wiedner Hauptstrasse 98
1050 WIEN
AUSTRIA

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please contact the nearest facility for the necessary assistance.

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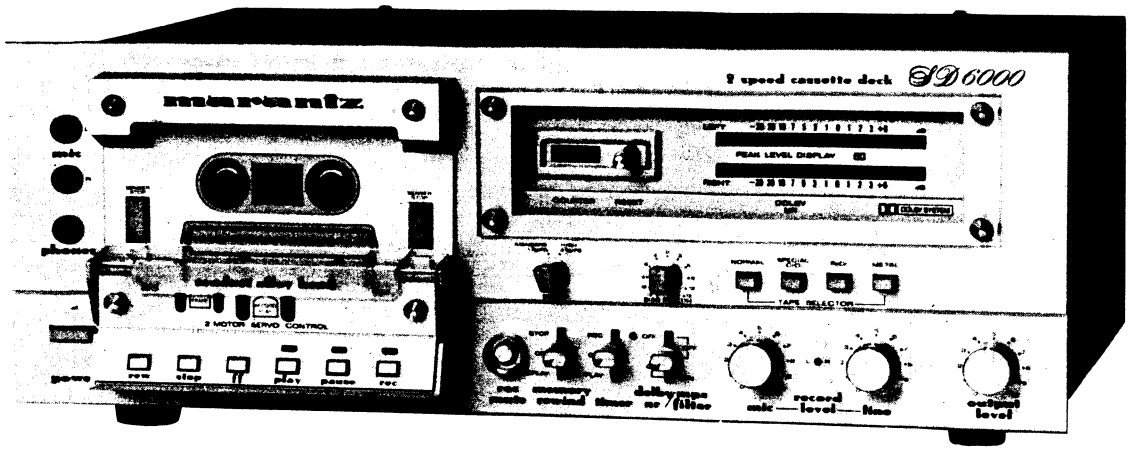
MARANTZ MODEL SD6000 STEREO CASSETTE DECK



INTRODUCTION

This service manual are prepared for use by Authorized Warranty Station and contains service information for Marantz Stereo Cassette Deck.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instruction should be read carefully. No attempt should be made to proceed without a good understanding of the operation of the Cassette Deck.

The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can be usually obtained through local suppliers.

1. PW. BOARDS

As can be seen from the circuit diagram, the chassis of your Cassette Deck consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Photo Capler ..... mounted on P.W. Board P001
2. Pre-Amp ..... mounted on P.W. Board P100
3. INPUT VOL. ..... mounted on P.W. Board P350
4. OUTPUT VOL. .. mounted on P.W. Board P351
5. Power Supply ..... mounted on P.W. Board P400
6. Logic Control ..... mounted on P.W. Board P500
7. Logic Switch ..... mounted on P.W. Board P590
8. Mecha Stop Switch mounted on P.W. Board P591
9. Mecha Stop Switch mounted on P.W. Board P592
10. Remote Switch ... mounted on P.W. Board P593
11. LED Meter Amp .. mounted on P.W. Board P600
12. LED Meter ..... mounted on P.W. Board P650
13. Fuse (P.A.N. only) mounted on P.W. Board P900
14. Timer & Memory .. mounted on P.W. Board P750

2. TEST EQUIPMENT REQUIRED FOR SERVICING

For measuring or checking your Cassette Deck, the following instruments and materials are necessary.

- VTVM
- Audio Oscillator (AF OSC)
- Attenuator (600 Ω)
- Oscilloscope
- Bandpass Filter (1 kHz)
- IEC A-Curve Filter
- Wow and Flutter Meter
- Torque Meter (Cassette Type)
- Digital Frequency Counter
- Distortion Meter
- Blank Tapes (Completely eraser with bulk eraser)
  TDK AC-211 (Normal)
  TDK AC-511 (CrO_2)
  SONY CS-30 (Fe-Cr)
  TDK AC701 (METAL)

NOTE: If any doubt is noted in a measured value, use new tape.

- Test Tapes (New Tape)
  MTT-111 Wow and Flutter, Tape Speed (1-7/8 I.P.S.)
  MTT-212 (MTT-112) Measurements of Output Level and Signal-to-Noise Ratio
  MTT-150 Adjustment of Output Level
  MTT-216 (MTT-116V) Frequency Response (for Normal)
  MTT-316 (MTT-116K) Frequency Response (for CrO_2, Fe-Cr Metal)
  MTT-112B Play Back Signal Noise Ratio (W:T D)
  MTT-121 Cross Talk
  MTT-141 Channel Separation
  MTT-111SP Wow and Flutter, Tape Speed (3-3/4 I.P.S.)

3. CIRCUIT DESCRIPTION
1 AUDIO SECTION

3.1.1 TAPE SPEED SELECTOR

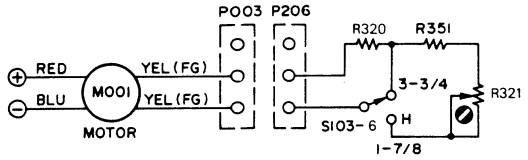
Tape speed is changed by switching the motor speed to 1,800 rpm for 1-7/8 ips (4.75 cm/sec) or to 3,600 rpm for 3-3/4 ips (9.5 cm/sec). In fast-forward or rewind operation, however, the motor always rotates at 1,800 rpm.

1. R321 is used for precisely adjusting the motor speed to 3,600 rpm.
2. To precisely adjust the motor speed to 1,800 rpm, turn the variable resistor built-in the motor.

NOTE: The motor speed is known by playing back the test tape MTT-111 and measuring the reproduced frequency.

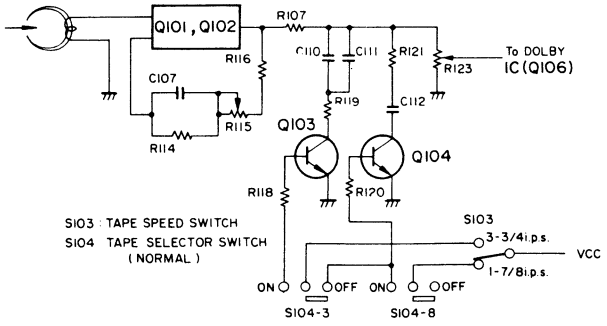
Motor speed (rpm)	Reproduced frequency (Hz)
1800	3000
3600	6000

TAPE SPEED SELECTOR



3.1.2 PLAYBACK EQUALIZER CIRCUIT

A block diagram of the playback equalizer circuit is shown below.



Time constants of the playback equalizer circuit at each tape speed and selector position are as follows:

TAPE SELECTOR POSITION		NORMAL	SPECIAL/ CrO_2	FeCr	METAL
TAPE SPEED	1-7/8 IPS	120 μS	70 μS	70 μS	70 μS
	3-3/4 IPS	70 μS	35 μS	35 μS	35 μS

Circuit Function at Each Time Constant

(1) 120μS

S104 is Tape Selector Switch for normal position' In the diagram, this switch is in the depressed position, causing Q103 and Q104 to turn OFF due to zero bias voltage. In this case, the playback time constant is set to 120μS by C107 andR114 ~ R116.

(2) 70μS

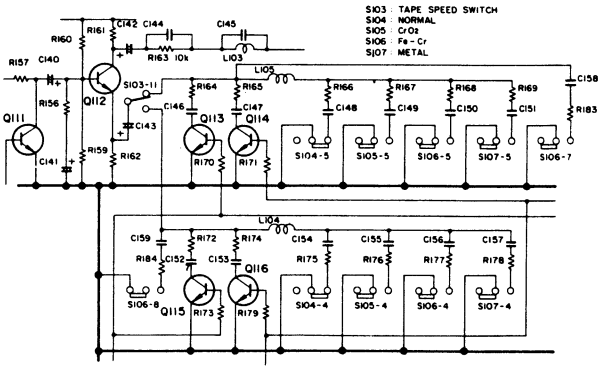
When the tape speed is 1-7/8 ips (4.75 cm/sec) and S104-8 is OFF (S104 turns OFF when the other tape selector switch is depressed) a bias voltage is applied to the base of Q104 which is then turned ON. When the tape speed is 3-3/4 ips and S104-8 is ON, Q104 is also ON. In either case, the playback time constant is set to 70μS by C107, R114~ R116, C112 and R121.

(3) 35μS

When the tape speed is 3-3/4 ips (9.5 cm/sec) and S104-3 is OFF, Q103 is ON and the playback time constant is set to 35μS by C107, R114 ~ R116, C110, C111 and R119.

3.1.3 RECORDING COMPENSATING CIRCUIT

(Tape Speed: 3-3/4 ips)



- High speed

In the circuit diagram, C144 and R163 and used for high range compensation, and R158 and C141 for low range compensation.

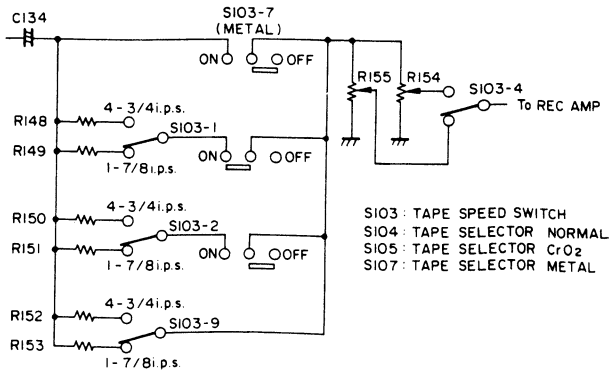
L104, R175 ~ R178 and C154 ~ C156 form a peeking circuit. Peeking frequency and thyamount of compensation are selected by the tape selector switch.

R172, R174, R184 and C159, C152, C153 are used for medium range compensation. The amount of compensation is selected by the tape selector switch (not available at "Normal" position).

Be sure that the control marked wis ((NORMAL" is for bias current adjustments in the METAL position.

3.1.4 RECORDING CURRENT SETTING CIRCUIT

Recording currents at each tape speed and each position of the tape selector switch are obtained from he following circuit:

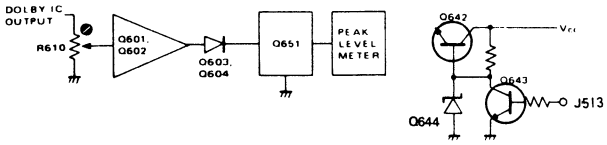


The switch (S106) for the FeCr position is not included in the above circuit. The recording current at this position is determined by R152 and R155 or R153 and R154. The resistors used to determine recording current at each tape speed and each tape selector switch position are shown in the table below.

TAPE SELECTOR POSITION		NORMAL	SPECIAL/ CrO_2	FeCr	METAL
TAPE SPEED	1-7/8 IPS	R153 R149 R155	R153 R151 R155	R153 R155	R155
	3-3/4 IPS	R148 R152 R154	R152 R150 R154	R152 R154	R154

3.1.5 LED METER CIRCUIT

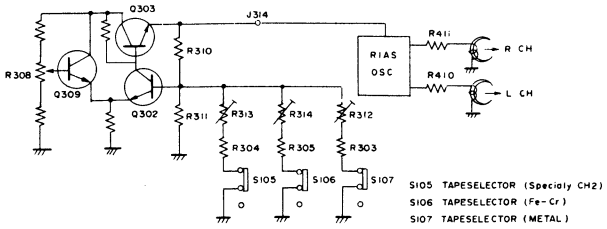
1. The signal amplified and rectified by Q601 and Q602 is applied to the LED drive IC(Q651).
2. The LED drive IC(Q651 makes LEDs light during playback or recording operation).
3. During fast-forward or rewind operation, Q643 is ON, so that the regulating transistor (Q642) in the LED power supply is OFF.
4. Since Q642 is OFF, noise signals are prevented from lighting LEDs.



3.1.6 BIAS OSCILLATOR CIRCUIT/ERASE OSCILLATOR CIRCUIT

This unit with capabilities to accommodate metal tapes has separate bias and erase oscillator circuits. However, for both Standard and High speeds, the bias current remains unchanged.

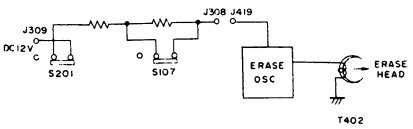
1. Bias Oscillator Circuit



As shown in the above drawing, by varying the Q303 base voltage, the bias oscillator circuit operational voltage is altered. Also, in case of 3-3/4 i.p.s. (9.5 cm/sec.), do not adjust by bias current. Adjust the recording EQ circuit, instead. Incidentally, R308 is the bias fine adjust control on the front panel.

	Normal	CrO_2	FeCr	Metal
1-7/8 ips (4.75 cm/s)	R411, R410	R313	R314	R312

2. Erase Oscillator Circuit



The erase oscillator circuit consists of Q417 and T402. Only in case of metal tapes, R322 is shorted to increase the erase current.

2 Control Section

3.2.1 GENERAL

The control circuit in the SD6000 Cassette Deck consists of IC and transistor logic set up around a microprocessor (Q505) that stores and processes various control signals.
With its dynamic control system, the control signal input circuit features simple circuit configuration and increased reliability.
The SD6000 has two motors and three solenoids, each of which serves the following purposes:

1) Capstan Motor (M001)
   This motor turns the capstan at a constant speed so that tape speed is always constant. It also gives a take-up torque to the right-side reel disc when the machine is in the PLAY or REC/PLAY mode.
2) Reel Motor (M002)
   The reel motor drives the take-up reel at high speed when the machine is in the Fast Forward or Rewind mode.
   The turning direction of the reel motor in Fast Forward is reverse to that in Rewind. The reel disc to be driven by the reel motor is automatically selected in accordance with the turning direction of the reel motor.
   The reel motor is also used to take up tape slack.
3) PLAY Solenoid (L001)
   The PLAY solenoid is used to put the deck into the PLAY or REC/PLAY mode. When the solenoid is actuated, it moves up the head base to bring the head into contact with the tape and, at the same time, presses the pinch roller against the capstan to transport the tape. It also provides the tape with adequate back tension by applying slight braking to the supply reel.
4) Brake Solenoid (L002)
   Operating in the PLAY, REC/PLAY, FF, and REW modes, the brake solenoid releases the brakes applied to both reel discs.
5) Record Solenoid (L003)
   Operating in the REC/PLAY or REC/PAUSE mode, the record solenoid puts the internal amplifier into the record mode. When this solenoid is not actuated, the amplifier enters the PLAY mode.

The control circuit uses 5 ICs Q501 to Q505. To operate these ICs properly, the supply voltage (emitter of Q558 or pin 6 of P504) to the ICs must always be within +4.75V to +5.25V.

	Q501 – Q504		Q505	
	Min.	Max.	Min.	Max.
H level output voltage	2.4V	–	2.9V	–
L level output voltage	–	0.4V	–	0.4V
H level input voltage	2.0V	–	2.0V	–
L level input voltage	–	0.8V	–	0.8V

Q501: SN7400
Q502: SN7401
Q503: SN7401
Q504: SN7404
Q505: M54410P

In the following circuit descriptions, the intial state of the deck is, unless otherwise stated, the STOP mode. All voltage values and operating times appearing in the descriptions are approximate values. Those values are subject to change due to changes in parts used and supply voltage variations.

3.2.2 CONTROL SIGNAL INPUT CIRCUIT

(NOTE: In this section, expressions like "Q503-4 (13)" are used. In this expression "Q503" represents an IC number, "4" represents a logic gate number, and "(13)" represents the pin number of the IC.)

The control signal input circuit uses a dynamic control system. See Figs 2-1 and 2-2.

1) Logic gates Q501-1 and Q501-2 constitute a clock pulse generator, which generates a square wave signal of approx. 71 Hz with a duty ratio of 50%.
2) Logic gates Q502-1 and Q501-3 constitute a T (Toggle) flip-flop. Its output (strobe A) reverses its state at every negative edge of the input clock, and it has a period twice as long as the clock period.
3) A logical product (AND) of strobe A and clock pulse generattes strobe B. Strobe A, strobe B, and depression timing of each control button determine the operation command signals coupled to the system control IC (micro-processor).

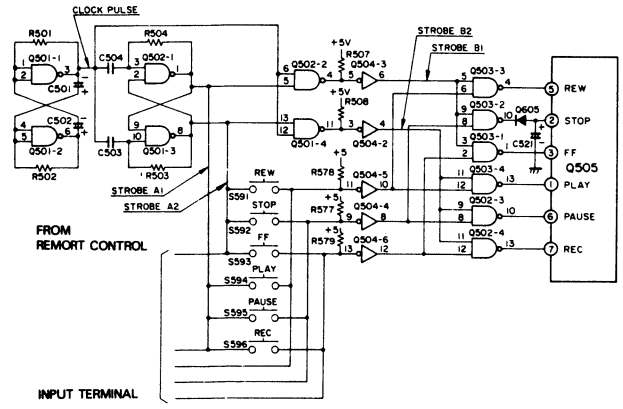


Fig. 2-1. Control signal input circuit

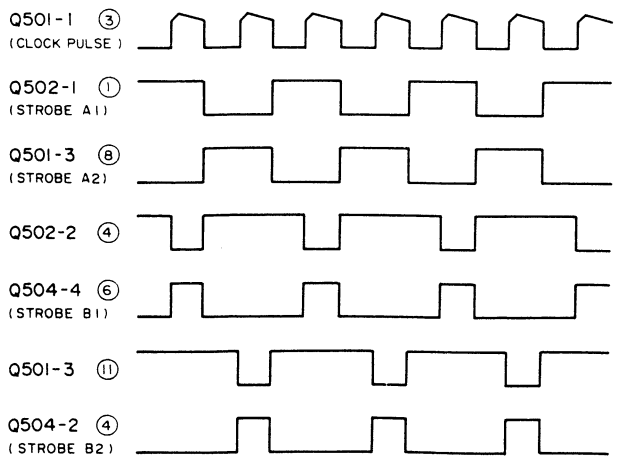


Fig. 2-2. Strobe timing chart

The following paragraphs describe the case where the PLAY button is depressed. See Fig. 2-3.

4) When no control button is depressed, pins (9), (11), and (13) of Q504 are all "H". When the PLAY button is depressed, strobe A is momentarily applied to Q504-5(11). After its polarity is reversed by Q504-5, strobe A1 goes to Q503-3(6) and Q503-4(12).
5) Q503-4(13) outputs a low-level signal only when strobe B2 and the "H" level of stroble A1 coincide. At the first negative going edge of this low-level output, the system control IC stores the PLAY mode.
6) During the period from above item 2) to 4), no coincidence takes place between the "H" levels of strobe B1 and reversed strobe A1. Therefore Q503-3(4) (REW operation command signal) remains "H" level.

As seen from this, sequence control depending on pulse timing is called the dynamic control system.
When any other control button than the PLAY button is depressed, a similar sequence is activated to apply an operation command signal to a corresponding input pin of the system control IC.

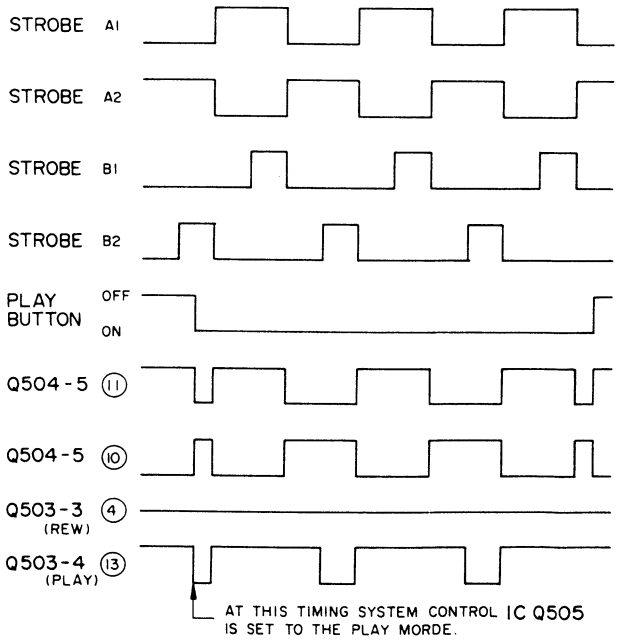


Fig. 2-3. PLAY operation command signal timing chart

3.2.3 SYSTEM CONTROL IC OPERATION

3.1. Pin Configuration and Block Diagram

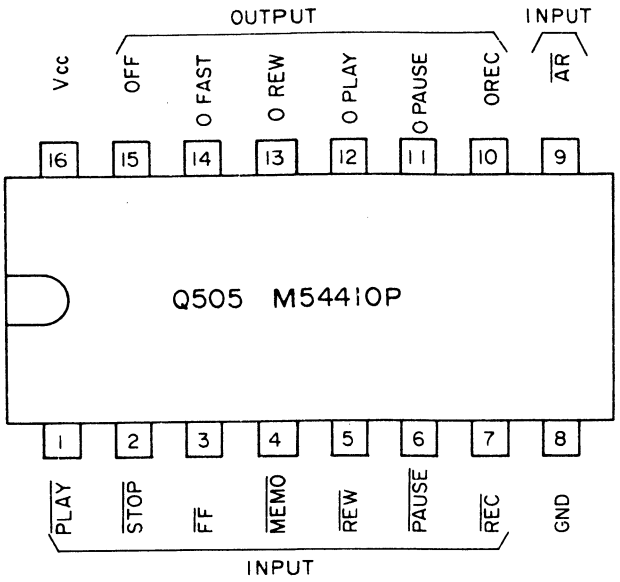


Fig. 3-1. Pin configuration (Top view)

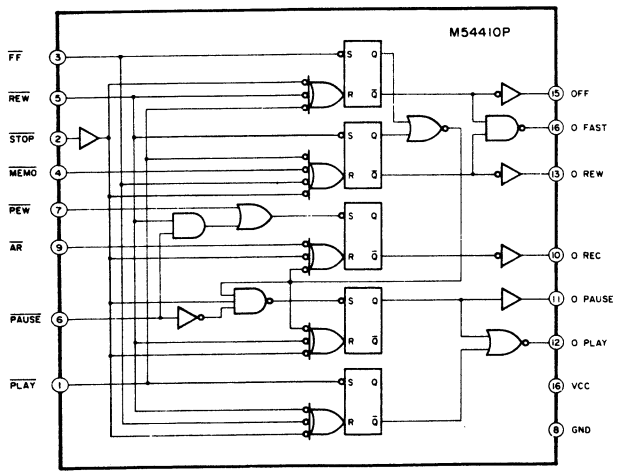


Fig. 3-2. Block diagram

3.2 Pin Mnemonics and Description of Function

	Pin No.	Mnemonic	Description	Remarks
Operation Input	1	$\overline{\text{PLAY}}$	Accepts PLAY start command.	
	2	$\overline{\text{STOP}}$	Accepts STOP command	
	3	$\overline{\text{FF}}$	Accepts FF command	
	5	$\overline{\text{REW}}$	Accepts REW command	
	6	$\overline{\text{PAUSE}}$	Accepts PAUSE command.	
	7	$\overline{\text{REC}}$	Accepts REC command.	
Control Input	4	$\overline{\text{MEMO}}$	Memory input	Unused.
	9	$\overline{\text{AR}}$	Record inhibit input	
Output	10	OREC	Outputs "H" level in the PAUSE mode.	
	11	OPAUSE	Outputs "H" level in the PAYSE mode.	
	12	OPLAY	Outputs "H" level in the PLAY mode.	
	13	OREW	Outputs "H" level in the REW mode.	
	14	OFAST	Outputs "H" level in the REW or FF mode.	
	15	OFF	Outputs "H" level in the FF mode.	
Power supply	8	GND	Ground Pin	
	16	Vcc	Accepts power supply Vcc	

3.3 Input Signal Processing

Input signal	Output						Output mode
	OFAST	OFF	OREW	OREC	OPAUSE	OPLAY	
$\overline{\text{STOP}}$	L	L	L	L	L	L	STOP Mode
$\overline{\text{FF}}$	H	H	L	L	L	L	FF mode
$\overline{\text{REW}}$	H	L	H	L	L	L	REW mode
$\overline{\text{PLAY}}$	L	L	L	L	L	H	PLAY mode
$\overline{\text{PAUSE}}$	L	L	L	L	H	L	PAUSE mode
$\overline{\text{REC/PLAY}}$	L	L	L	H	L	H	REC/PLAY mode
$\overline{\text{REC/PAUSE}}$	L	L	L	H	H	L	REC/PAUSE mode

1) Each mode is set to "H" at the negative going edge of each input signal.
2) $\overline{\text{REC/PLAY}}$ means that $\overline{\text{REC}}$ and $\overline{\text{PLAY}}$ inputs are reset to "L" at the same time.
3) $\overline{\text{REC/PAUSE}}$ means that $\overline{\text{REC}}$ and $\overline{\text{PAUSE}}$ inputs are reset to "L" at the same time.
4) While input $\overline{\text{AR}}$ is "L", OREC is held to "L".
5) Each output maintains its state until an input causing a different output mode is received.

3.4. Output Mode Transitions

1) The following table shows output mode transitions actuated by each input signal.
2) Hatched sections in the following table indicate no mode transition.

Current Output mode	Input signal						
	STOP	FF	REW	PLAY	PAUSE	REC/PLAY	REC/PAUSE
STOP mode		FF	REW	PLAY	PAUSE	REC/PLAY	REC/PAUSE
FF mode	STOP		REW	PLAY		REC/PLAY	
REW mode	STOP	FF		PLAY		REC/PLAY	
PLAY mode	STOP	FF	REW		PAUSE	REC/PLAY	REC/PAUSE
PAUSE mode	STOP	FF	REW	PLAY		REC/PLAY	REC/PAUSE
REC/PLAY MODE	STOP	FF	REW		REC/ PAUSE		REC/PAUSE
REC/PAUSE mode	STOP	FF	REW	REC/ PLAY		REC/PLAY	

3.5. Multiple Button Depression

Since the control signal input circuit is controlled dynamically, if all the operation buttons are depressed at the same time, the system control IC accepts control signals as shown in Fig. 3-3:

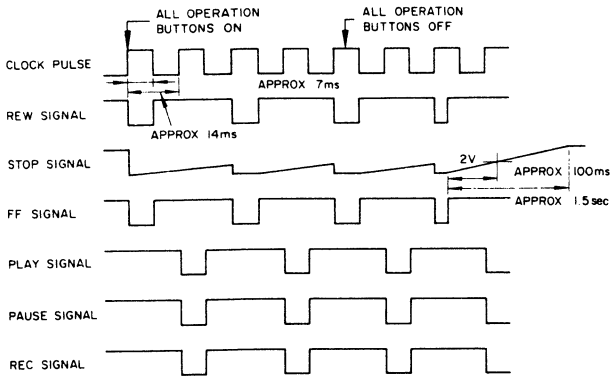


Fig. 3-3. Input signal timing

While the STOP button is depressed, the STOP signal remains at "L" level, and when it is released, the signal is not immediately restored to "H" level because of capacitor C521. Therefore, if any other button is depressed together with the STOP button, the highest priority is always given to the STOP button.
Which mode the deck enters when a multiple button depression is released depends on the signal applied to the system control IC immediately before the last button is released.

3.6. Output Mode at Power ON

When the power to the deck is turned ON, all the outputs become "L", with the deck in the STOP mode.

3.2.4 CIRCUIT OPERATION

4.1. Playback

Pressing the PLAY button sets the system control IC(Q505) into the PLAY mode, with a PLAY signal (H) output from pin 12.
The PLAY signal causes the following operation sequence:

1) Transistor Q550 is turned ON' This causes the following control sequence to put the amplifier into the PLAY mode (see Fig. 4-1.).
   a. Q643 is turned OFF. This activates the voltage regulator that supplies power to the LED meter.
   b. Q109 and Q209 are turned OFF, releasing playback muting.
   c. Q111 and Q211 are turned OFF, releasing record amplifier muting.

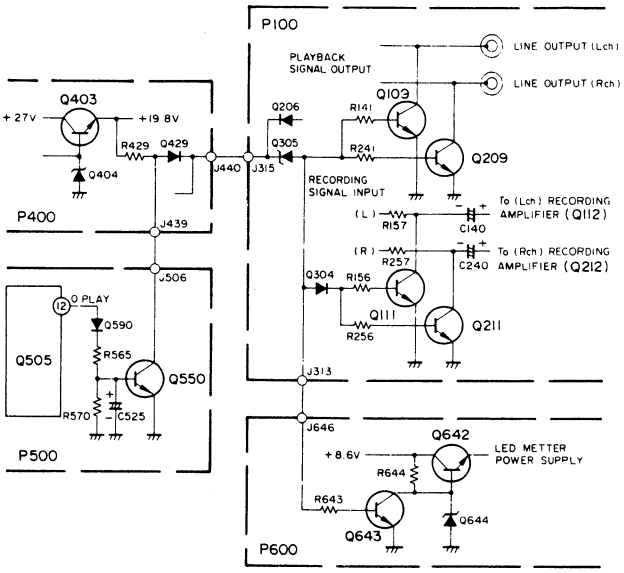


Fig. 4-1. Muting control circuit

2) Q553 is turned ON for approx. 0.5 second via C518 AND D594. This actuates the solenoid drive voltage switching circuit consisting of Q555, Q556, Q432, etc. (The circuit operation will be described in section 5.1.) When Q553 is turned ON, Q554 is turned OFF.
   During this period, an "H" level signal is coupled to the tape end sensing circuit (Q546, Q549) via R569 and D588. This "H" level signal temporarily suspends the tape end sensing circuit function until tape running is stabilized. (For the details of the tape and sensing circuit, refer to section 5-2.)
3) Q540 is turned ON via Q579 and Q580. This causes Q541 to turn ON, actuating the brake solenoid (L002).
4) Q536 is turned ON via Q579 and Q581. This lights the PLAY indicator LED (Q591) and, at the same time, turns Q537 ON, actuating the PLAY solenoid (L001).

4.2. PAUSE

Pressing the PAUSE button causes a PAUSE signal (H) to be output from pin 11 of the system control IC.

1) The PAUSE signal is coupled to the tape end sensing circuit via R556 and Q587 to make the circuit inactive during the PAUSE mode.
2) The PAUSE signal also turns Q510 ON via Q601, Q600, Q599, and Q505, causing the PAUSE indicator LED (Q592) to go ON.

4.3. RECORD

Pressing the REC and PLAY buttons simultaneously causes PLAY and RECORD signals to be output from pins 12 and 10 of the system conrol IC respectively.

The PLAY signal, as mentioned earlier (4.1), puts the deck into the PLAY mode.

1) The RECORD signal turns on Q538 via Q582 and R545, and lights the RECORD indicator LED (Q593).
2) When Q538 is turned ON, Q539 is also turned ON, activating the RECORD solenoid. This puts the amplifier into the RECORD mode.

4.4. REC/PAUSE

Pressing the REC and PAUSE buttons simultaneously causes both the RECORD and PAUSE signals to be output from the system control IC.

Although the RECORD signal puts the amplifier into the RECORD mode, the tape does not start running since no PLAY signal is present. Also in the REC/PAUSE mode, the RECORD signal turns Q550 ON via Q589 and R565, thus releasing amplifier muting.

4.5. Fast Forward

Pressing the FF button causes the FF signal and EAST signal to be output from pins 15 and 14 of the system control IC.

The FF signal causes the following operation sequence:

1) Q528 is turned ON via Q573, Q574, and R529. This sets the reel motor drive circuit into the FF mode to cause the right side reel disc to rotate at high speed. (For the details of the reel motor drive circuit, refer to section 5-3.)
2) Q540 and Q541 are turned on via Q573, Q575, and Q547, actuating the brake solenoid (L002).

The FAST signal turns Q553 ON for approx. 0.5 second via C516 and Q596. The output of Q553 actuates the solenoid drive voltage switching circuit.

4.6. REWIND

Pressing the REW button causes the REW and FAST signals to be output from pins 13 and 14 of the system control IC respectively.

For the details of the REW circuit, refer to the FF circuit, operation of which is almost identical to the REW operation.

4.7. STOP

The STOP circuit has the following circuit configuration:

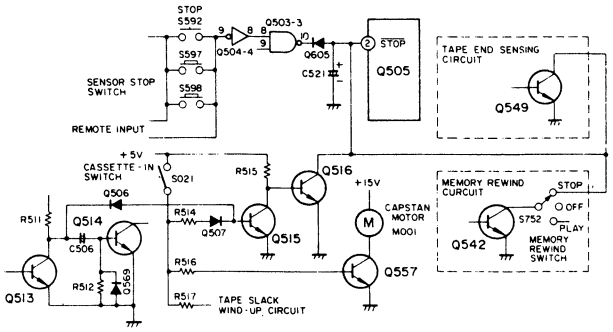


Fig. 4-2. STOP circuit configuration

When an "L" level signal is coupled to pin 2 of the system control IC, the deck is put into the STOP mode. This happens under each of the following conditions:

1) When the STOP button is depressed.
2) When stop sensor switch S597 or S598 is depressed.
3) When the STOP button on the remote control unit is depressed.
4) For the approx. 0.3 second in which C521 is charged to high level (approx. 2V) immediately after the power to the deck is turned ON.
5) When no cassette is loaded in the deck. In such a case, the cassette-in switch (S021) is open, with Q515 and Q516 turned OFF and ON respectively. When the cassette-in switch is open, Q557 remains OFF, causing the capstan motor (M001) to remain stationary.
6) When the end of a tape is reached when the deck is in the PLAY, REC/PLAY, FF, or REW mode. In this case, the tape end sensing circuit is actuated turning Q549 ON. (See section 5.2.).
7) When the tape counter returns to "000" with the memory rewind switch in the STOP position and the deck in the REW mode. (See section 5.5.).

NOTE: The STOP operation under condition 5) takes priority over the ther conditions. Conditions 1) through 4), 6), and 7) take priority over all other operations except the tape-slack wind-up operation.

4.8. Mode Transition

Pressing the FF (or REW) button during PLAY (or REC/PLAY) operation puts the deck into the FF (or REW) mode after temporarily entering the STOP mode. Similarly, transitions FF to REW, REW to FF, FF to PLAY (or REC/PLAY), and REW to PLAY (or REC/PLAY) are all accomplished via the STOP mode. This contributes to stable tape transport operations and eliminates drop-out and tape jamming.

See the schematic diagram in Fig. 4-3 and timing chart in Fig. 4-4.

The following circuit description uses a transition from REW to PLAY as an example.

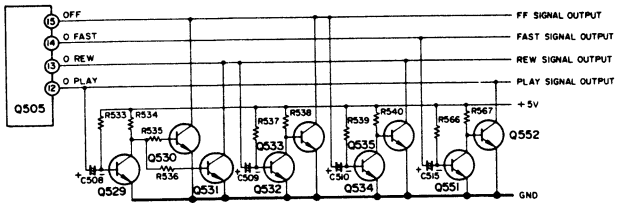


Fig. 4-3. Delay circuit for mode transition

1) During the REW mode, OFAST remains at "H" level.
   Therefore, C515 is charged with Q551 and Q552 turned ON and OFF respectively.
2) Pressing the PLAY button resets the REW mode and, instead, sets the PLAY mode inside Q505.
3) When the REW mode is reset, OFAST and OREW go from "H" to "L". When OFAST goes to "L", C515 discharges.
   While the discharging current is present (for approx. 100ms), Q551 and Q552 are turned OFF and ON respectively.
4) At this time, the internal circuit of Q505 is already set to the PLAY mode, but OPLAY is held to "L" level while Q552 is turned ON. Therefore, for approx. 100ms immediately after the PLAY button is depressed, the deck remains in the STOP mode.
5) After the delay time of approx. 100ms, Q511 is turned ON and Q522 is turned OFF. This makes the OPLAY signal "H" level to put the deck into the PLAY mode.

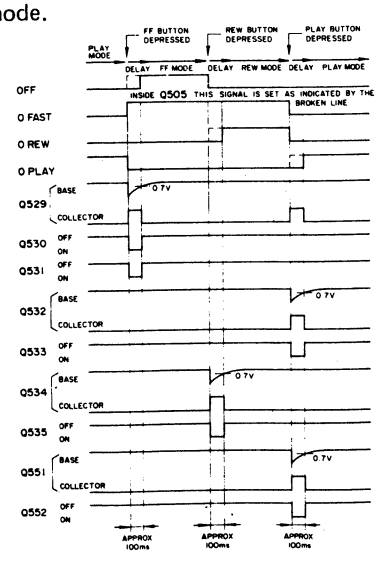


Fig. 4-4. Mode transition timing chart

3.2.5 AUXILIARY CIRCUITS

5.1. Solenoid Driving Voltage Switching Circuit

The SD6000 uses three individual solenoids. To ensure consistent operation of these solenoids, a large enough energizing current is required. However, if a large current is passed through a solenoid for a long period, the winding resistance increases due to heat, resulting in a reduced pulling force and unstable operation.

However, although energizing a solenoid requires a relatively large current, once it is energized, a smaller current is enough to maintain it stably. Therefore, the SD6000 has a solenoid drive voltage switching circuit which switches driving voltages for energizing and maintaining solenoids.

The following describes circuit operation with the PLAY mode using an example. Refer to Figs 5-1 and 5-2.

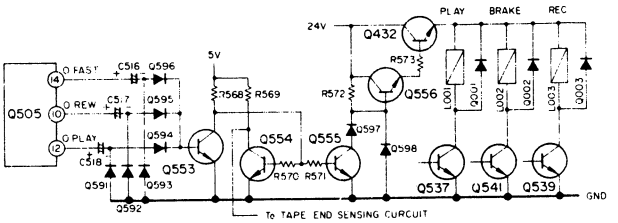


Fig. 5-1. Solenoid driving voltage switching circuit

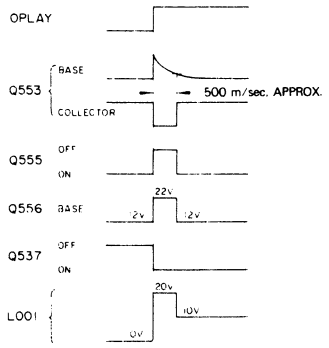


Fig. 5-2. Example of operation (PLAY mode)

1) Pressing the PLAY button causes OPLAY to go "H".
2) The OPLAY signal turns Q553 ON for approx. 500ms via C518 and Q594. This turns off Q555.
3) When Q555 is turned OFF, the base potential of Q556 is held to 22V by zener diode Q598. As a result, approx. 20V is obtained at the emitter of Q431.
4) As mentioned in PLAY operation in section 4-1, the OPLAY signal causes Q537 to turn ON, applying +20V DC across play solenoid L001 to energize it.
5) Q553 is turned OFF approx. 500ms later, turning Q555 ON.
   This causes the base of Q556 to be biased to +12V DC by zenor diode Q597, reducing the emitter potential of Q432 to +10V. In the PLAY mode, the PLAY solenoid is maintained with this driving voltage of +10V.
6) Releasing the PLAY mode causes the OPLAY signal to go "L". This causes the charge across C518 to quickly discharge through Q591, C518, and Q505 to be ready for the following operation.

5.2. Tape End Sensing Circuit

When the end of a tape is reached during the PLAY, REC/PLAY, FF, or REW mode, the tape end sensing circuit senses it and sends a stop signal to the system control IC. When the right-side reel disc rotates, the shutter drum also rotates together with the reed disc. The shutter drum is provided with two optical slits. Photo coupler Q001 consists of an LED and photo transistor. The light emitted from the LED reaches the photo transistor only when the shutter drum's slit passes across the photo coupler to turn ON the photo transistor. Refer to Figs 5-4 and 5-5.

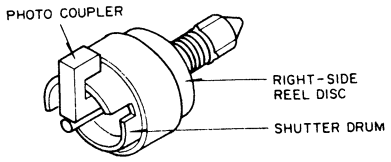


Fig. 5-3. Tape end sensor

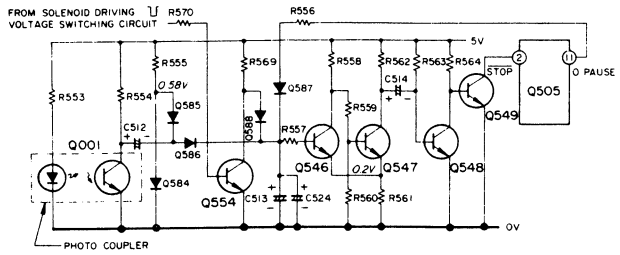


Fig. 5-4. Tape end sensing circuit

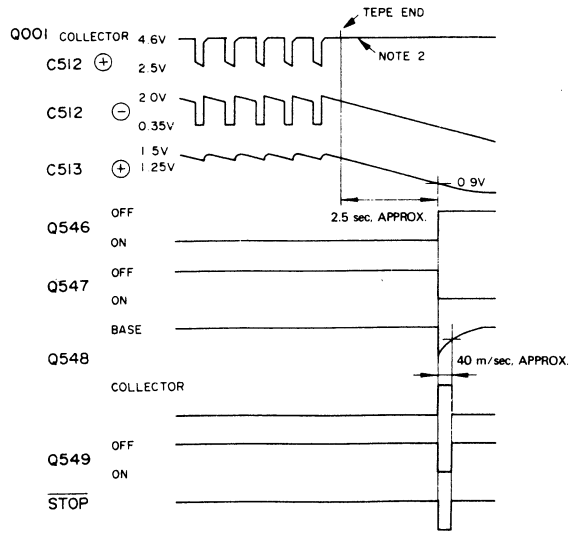


Fig. 5-5. Tape end sensing timing (Voltages represent typical values.)

1) When the PLAY, REC/PLAY, FF, or REW mode is actuated, an "L" level signal from the solenoid driving voltage switching circuit turns Q554 OFF for approx. 0.5 second.
   During this 0.5 sec., C513 and C524 are charged through R569 and C588 to turn Q546 ON and Q547 OFF. Q548 and Q549 remain ON and OFF respectively.
2) While tape is running and the reel disc is rotating, the collector voltage of the photo transistor repeats ON and OFF operation as shown in Fig. 5-5. (As can be seen from the figure, the ON state of the photo transistor is not necessarily the ideal one.)
3) Q584 (silicon diode 1S1555) is forward biased via R555 with its anode potential held at approx. 0.58V. When the photo transistor is turned ON, C512 discharges through R555, Q585, C512, and Q001. At the time, the negative-side potential of C512 is clamped to approx. 0.35V, a voltage lower than 0.58 volt by the forward voltage drop across Q585 (Germanium diode 1N34A).
4) When the photo transistor is turned OFF, its collector voltage is increased by V with respect to that in the ON state. This voltage variation is transferred to the negative terminal of C512, where the potential becomes (DC clamp voltage) + (positive terminal voltage variation). As a result, voltages V and V appear repeateldy at the negative terminal of C512.
   The purpose of the DC clamp is described in following item (8).
5) When the PLAY, REW, FF, or other mode is actuated, C513 and C524 are charged through R569 and R588. After Q554 is turned ON, the charging current is supplied through Q586.
   C513 and C524 are charged only when the photo transistor is turned OFF, and are discharged through the base of Q546.
6) When the end of tape is reached and tape stops running, the reel disc also stops turning, causing the photo transistor to stop electrical switching. As a result, C513 and C524 are not longer charged, and the voltages across those capacitors are gradually reduced as they discharge through Q546.
7) When the potential of C513 and C524 is reduced to approx. 0.9V, Q546 and Q547 are turned OFF and ON respectively. Q546 and Q547 constitute a Schmitt trigger circuit which converts an input signal with gentle slope into an output signal with a steep leading edge. When Q547 is turned ON, Q548 is momentarily turned OFF via C514.
   During this OFF period of Q548, Q549 is turned ON. This gives an "L" level stop signal to the system control IC, putting the deck in the STOP mode.
   The tape end sensing period from the time tape running stops to the time when the stop signal is issued is approx. 2.5 seconds.
8) The DC clamp circuit consiting of R555, Q584, and Q585 determines the upper limit of charging voltages to C513 and C524 while the photo transistor is turning ON and OFF. As shown in Fig. 5-5, the thresh-old level of the Schmitt circuit is located on a very gentle slope of the dischrging curve of C513 and C524.
   Therefore, if the charging voltage is increased even slightly, the tape end sensing period will be increased remarkably. To prevent this, the DC clamp circuit the tape end sensing period to approx. less than 2.5 seconds.
9) In the PAUSE, mode the OPLAY signal is at "H" level, and Q546 is held ON via R556 and Q587. Therefore, no STOP signal is issued if the tape stops running.

5.3 Reel Motor Driving Circuit

1) Q518 is usually turned ON and hence Q520 is usually turned OFF. As a result, the base of Q519 is biased through R524
2) When the system control IC is set into the FF mode, an "H" level OFF signal is coupled to Q528 via Q573, Q574, and R529, and turns it ON then turns Q525 ON. When Q525 is turned ON, its collector potential goes to "L", turning Q524 ON. As a result, a driving current passes through the reel motor (M002) via the power supply, Q524, M002, and Q525, turning the motor counterclockwise (as viewed from the pulley) to drive the right-side reel disc. At this time, the emitter boltage of Q519 is approx. 13V.

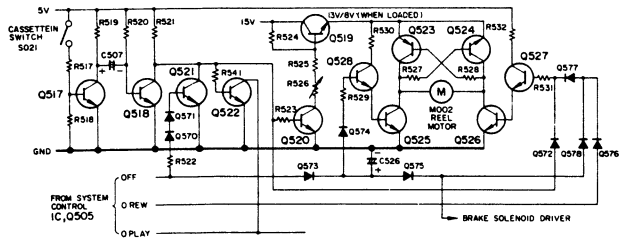


Fig. 5-6. Reel motor driving circuit

3) In the REW mode, Q523 and Q526 are turned ON in a similar way to drive the reel motor clockwise (reverse to the FF mode). When the reel motor rotates in the clockwise direction, the FF pulley is automatically switched to the left-side reel disc.

5.4. Tape Slack Wind-Up Circuit

Slack tape often causes program drop-out and tape jamming. To prevent this, the SD6000 has a tape slack wind-up circuit that automatically winds up tape slacks when a cassette is loaded into the deck with the power turned ON or when the power to the deck with a cassette loaded into the deck with the power turned ON or when the power to the deck with a cassette loaded is turned ON.

Refer to Fig. 5-6.

When the power to the deck is turned ON with no cassette loaded in the deck, cassette-in switch S021 remains open with Q517 and Q518 turned OFF and ON respectively. When a cassette is loaded in the deck, S021 is closed, turning Q517 ON. As a result, the base potential of Q518 is pulled to the ground level via C507, causing Q518 to turn OFF for approx. 1 second. During this period, an "H" level signal is obtained at the collector of Q518 to be ready for following operations.

1) Turning Q522 ON forcibly brings the OPLAY output pin of the system control IC to "L" level. This prevents the deck from being entering the PLAY mode during tape slack wind-up operation.
2) Q520 is turned ON via R523. As a result, the base bias of Q519 is given by the ratio of the sum of R525 and R526 to R524, and hence the emitter voltage (when loaded) of Q524, and hence the emitter voltage (when loaded) of Q519 is reduced to approx. 8V.

This sequence is to reduce the reel motor torque and thus to prevent tape from being wound up excessively.

3) Q527 is turned ON via Q572 and R531, turning Q526 and Q523. This applies a rewind torque to the left-side reel disc. Although brakes are applied to both reel descs during tape slack winding-up operation, the brake of the left-side reel disc is not very effective because of the reverse direction of rotation, so that tape slack can be wound up even with a lower driving torque.

When the power to the deck with a cassette already loaded in it is turned ON (for example, for timer recording), tape slack is removed in a similar manner. When the PLAY, FF, REW, or STOP button is depressed while tape slack wind-up operation is being carried out, the following operations are activated:

4) When the PLAY button is depressed:
   Q522 remains ON to prevent the OPLAY signal from becoming "H". Therefore, the PLAY mode is not actuated before tape slack is removed and Q522 is turned OFF.
5) When the FF button is depressed:
   The OFF signal causes Q521 to turn ON, releasing the tape slack wind-up function. Therefore, the FF mode is actuated immediately after the FF button is depressed.
6) When the REW button is depressed:
   The REW mode is actuated immediately after the REW button is depressed. However, during the tape slack wind-up period, the reel motor torque remains low.
7) When the STOP button is depressed:
   The tape slack wind-up operation is not interrupted.

5.5 Memory Rewind Circuit

S003 is interlocked with the index counter and is turned ON when the counter indication is between "900" to "000". When the deck is placed in the REW mode, the Crew signal is "H", with Q545 and Q544 turned ON and OFF respectively. When tape is rewound and the counter counts down to "000", S003 is turned ON. This causes the base of Q543 to be pulled to the ground level via C511, turning Q543 OFF for approx. 1.6ms. During this short period, a bias voltage is applied to the base of Q542. At the time, if the memory rewind switch (S752) is in the STOP position, Q542 is turned ON to momentarily bring Q505(2) to "L" level. As a result, the deck is put into the STOP mode.

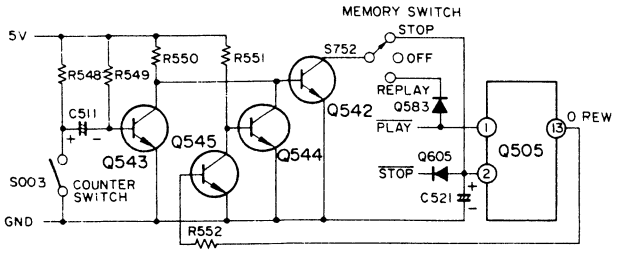


Fig. 5-7. Memory rewind circuit

When S752 is in the OFF position, Q524 remains OFF, and the tape is rewound to the end to cause the tape end sensing circuit to actuate, bringing the deck into the STOP mode. When S752 is in the REPLAY position, Q542 is turned ON, giving the PLAY signal to Q505(1).

As a result, the REW mode is released and the deck is put into the PLAY mode. When S752 is in the STOP or REPLAY position and the deck is in the REW mode, if the end of a tape is reached before the counter reaches "000", the tape end sensing circuit actuates to put the deck into the STOP mode.

When tape stops with S752 in the STOP position, pressing the REW button again rewinds the tape to its end and automatically puts the deck into the STOP mode.

5.6. Timer Circuit

The timer circuit is an external timer switch that puts the deck into PLAY or REC/PLAY mode when the power to the deck is turned ON. Refer to Figs 5-8 and 5-9. When the power to the deck is turned ON with the external timer switch (with a cassette loaded and the power switch on the deck in the ON position), the voltage regulator circuit is immediately activated to supply +B voltage (approx. 19.8V). At the time, C505 remains discharged and the base of Q512 is "L". This causes Q512 and Q513 to turn OFF and ON respectively. C505 is charged through R509 with its charged potential gradually increasing. When the voltage across C505 reaches approx. 9.6V (= Q568's zener voltage 9V plus Q512 Vbe 0.6V), Q568 is turned ON, turning Q512 ON.

As a result, Q513 is turned OFF. It takes approx. 5 seconds from the power ON to Q512 ON. When Q513 is turned OFF, a charging current to C506 passes through Q514 via R511, turning Q514 ON for approx. 50ms. At this time, if timer switch S751 is placed in the PLAY position, the PLAY signal ("L") is coupled to Q505 to put the deck into the PLAY mode. If S751 is in the REC position, both the PLAY and REC signals are coupled to Q505.

As a result, if the erasure prevention tab on the cassette being loaded is not removed (S022 open; AR "H"), the deck starts in the REC/PLAY mode. When the erasure prevention tab is removed (S022 closed; AR "L"), the deck starts in the PLAY mode.

When the power to the deck is turned OFF, C505 discharges through Q567 to the power supply, and its potential quickly drops below the threshold levels of Q568 and Q512 to be ready for the subsequent operation. Therefore, the deck can be started or stopped repeatedly until the end of the tape is reached. An appropriate delay is provided for timer starting so the deck is started after tape slacked is removed and circuit voltages are stabilized.

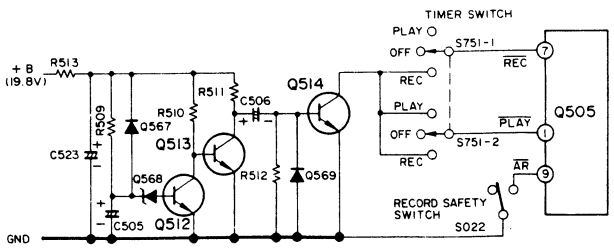


Fig. 5-8. Timer circuit

5.7. Tape Speed Switching Circuit

The tape speed in the PLAY or REC/PLAY mode depends on the rotation speed of the capstan motor (M001). M001 is servo controlled by a frequency generator (FG). In the SD6000, tape speed switching is accomplished by changing the control output of the FG. The speed switching circuit is shown in the following figure.

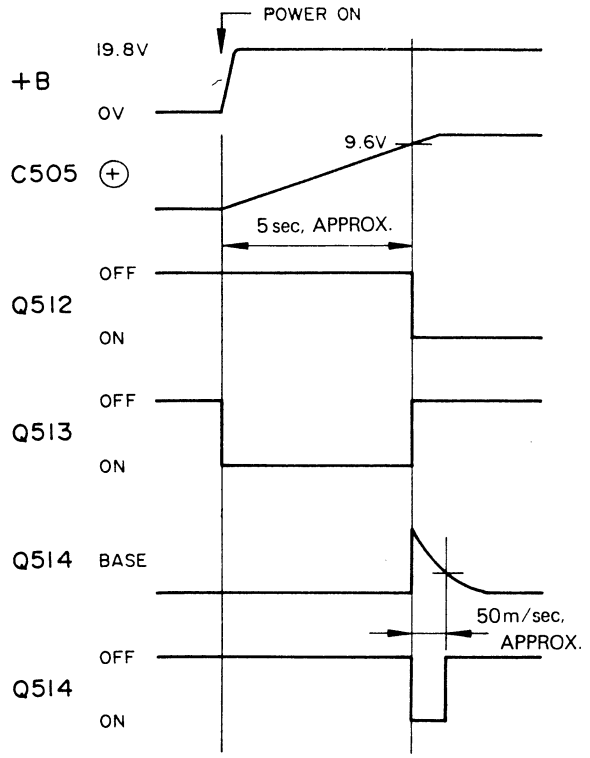
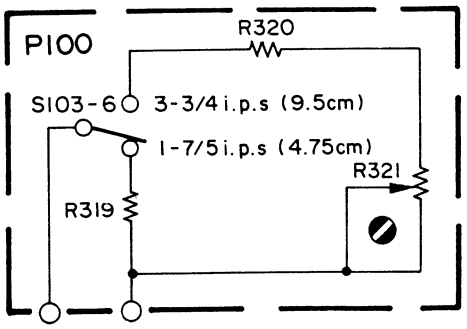


Fig. 5-9. Timer circuit timing sequence



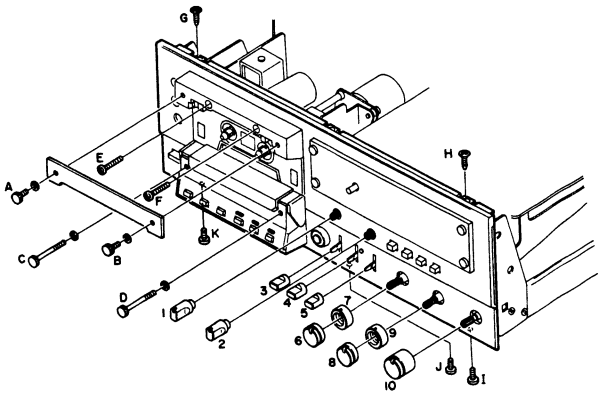
5.8. Power ON Mechanism Operation Inhibit Circuit

As described in section 5.6, Q513 is turned ON approx. 5 seconds after the power to the deck is turned ON. During this 5 seconds, Q515 is turned OFF due to Q506. When Q515 is turned OFF, Q516 is turned ON. As a result, the deck remains in the STOP mode for approx. 5 seconds after the power is turned ON. During this 5 second period, the deck mechanism can not be operated by any of the operation buttons.

4. DISASSEMBLY

REMOVING THE FRONT PANEL

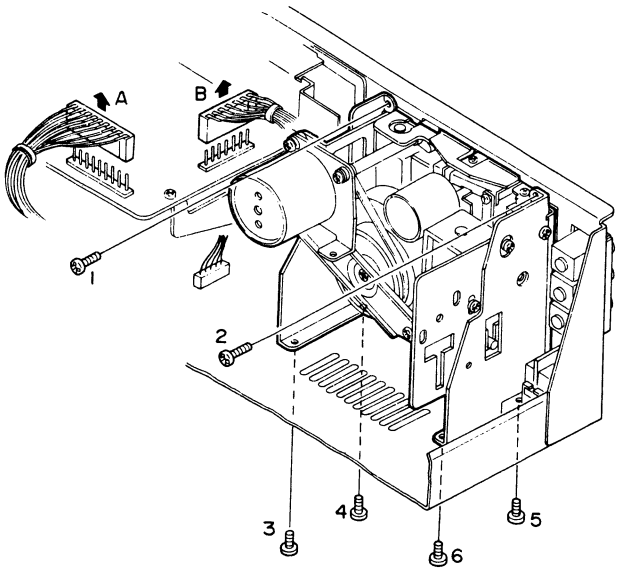
Remove the screws A, B, C, D, E and F Holding the mechanical unit.
Remove the knobs 1 to 10.
Remove the screws G, H, I, G and K.



4. DISASSEMBLY

4.1 DETACHING MECHANISM BLOCK

1) Remove the mechanism operating section housing. (Refer to detaching the front panel.)
2) Remove the 6 mechanism mounting screws.
3) Remove connectors (A) and (B), (C).

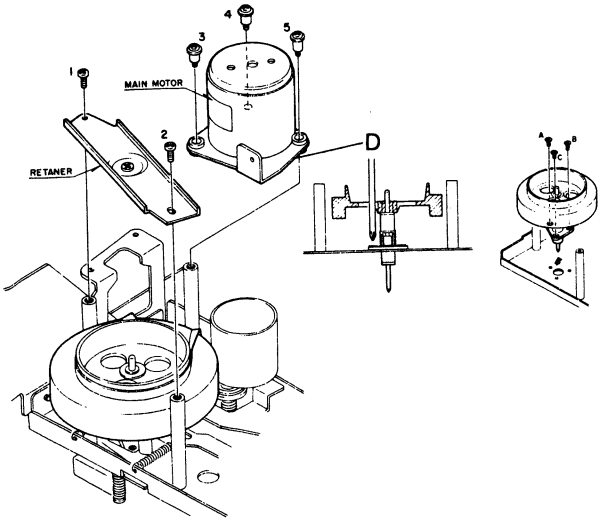


4.2 DETACHING THE FLYWHEEL

1) Remove the (1), (2) 2 flywheel support arm mounting screws.
2) Detach the flywheel support Retainer.
3) Remove the motor mounting Bracket (A)~(D) (3 screws).

NOTE: Take care to avoid oil getting on the motor belt.

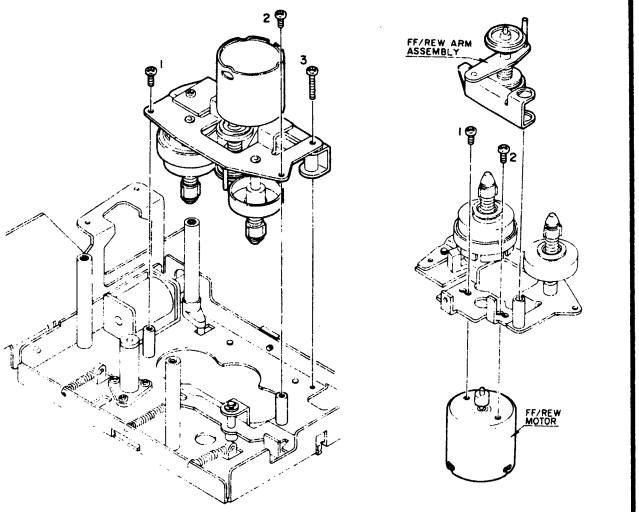
4) Insert a screwdriver in the 3 holes, (A), (B), and (C), in the flywheel.
5) Remove the 3 spindle bearing mounting screws.
6) Detach the flywheel.



4.3 DETACHING FF/REW MOTOR

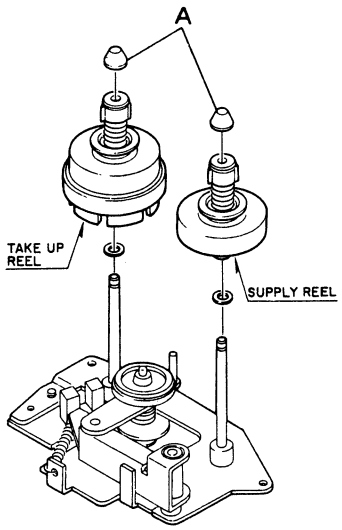
1) Remove the mechanism block.
2) Remove the solenoid mounting arm.
3) Remove the main motor mounting arm.
4) Remove the flywheel.

5) Remove the 3 FF/REW motor mounting screws, (1), (2), and (3).
6) Remove the 2 mounting screws, (4) and (5), for the motor mounted on the motor mounting Bracket.



4.4 DETACHING THE SUPPLY AND TAPE-UP REEL DISK

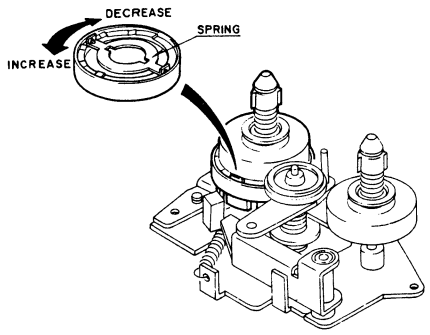
1) Remove the caps holding the reel disks in place A .
2) Release the brake lever and remove the reel disks.



5. MECHANICAL ADJUSTMENTS

5.1 PLAY TORQUE ADJUSTMENT

Put the two pawls of the circular plate spring on proper stepped position of the reel rest. The adjustable torque range is 40 to 70 g.cm. To make the torque high, put the pawls on a shallow step.
For lower torque, put them on a deeper step.



5.2 FF AND REW TORQUES ARE NOT ADJUSTABLE

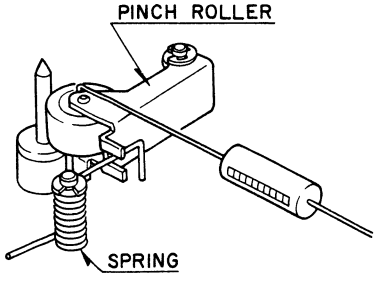
- If FF or REW functions are inadequate, renew the entire block, P/N 4397002420.
- When the motor (reel motor) is worn, FF and REW modes may not function properly. In such a case, renew the motor.

5.3 PINCH ROLLER PRESSURE

330g ± 50g

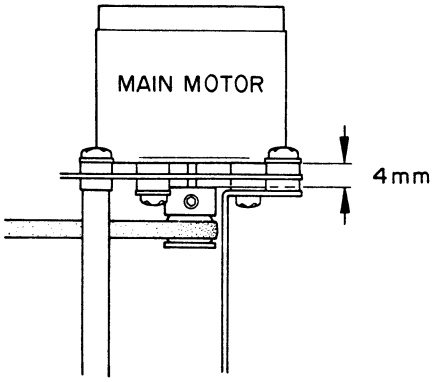
Measure the pressure of the pinch roller using a gauge as shown. For measurement, draw the pinch roller in the arrow direction in which it is detached from the capstan shaft and gradually return it toward the capstan.
Read the gauge at the time when the pinch roller starts turning. The standard pressure is 330g ± 50g.
If the pinch roller pressure is inadequate, adjust by bending portion (A) of the spring.

NOTE: **To make the pressure strong, bend in the direction B. To make the pressure weak, bend in the direction C.**

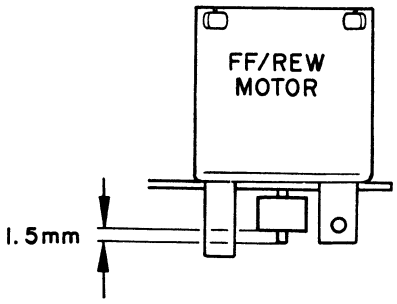


5.4 MOTOR PULLEY ADJUSTMENTS

(1) Main Motor
Loosen the set screw and adjust the motor pulley position until the clearance between the pulley and
motor is 4 mm as shown. Tighten the set screw.

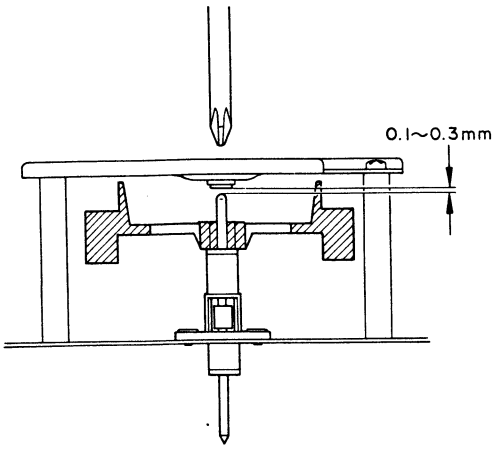


(2) FF/REW Motor
Insert the pulley so that the distance between the motor shaft and the pulley is 1.5 mm.



5.5 FLYWHEEL THRUST

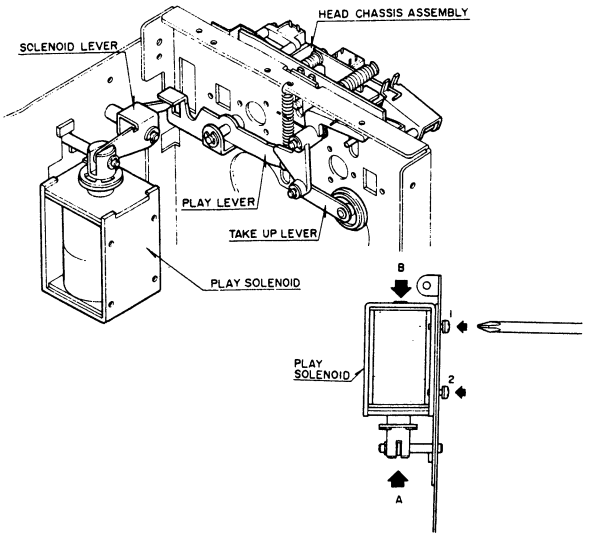
Adjust the thrust screw at the flywheel bracket until the clearance between the capstan tail end and thrust bearing is 0.1 to 0.3 mm as shown, using a Phillips screw driver. For adjusting, feel of axial dropping of the flywheel for proper clearance as this cannot been seen through. Then paint the screw to lock.



5.6 SOLENOID ADJUSTMENTS

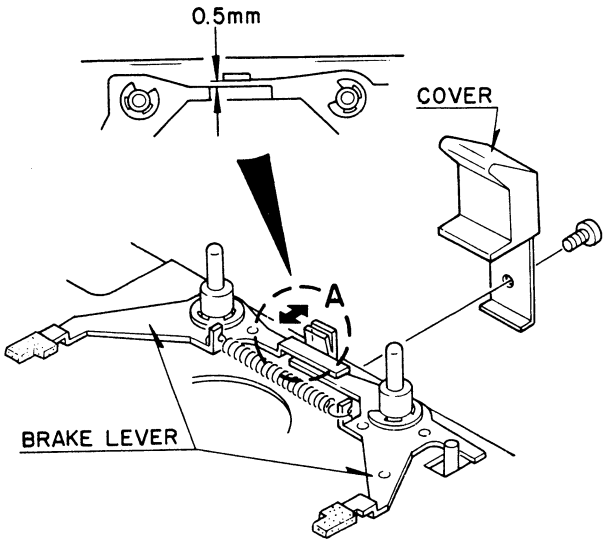
- **Main Solenoid**

1. Loosen the two Solenoid mounting screws. (1) (2)
2. Push the Solenoid plunger all the way with fingers in the direction of arrow (A). At this point, the head chassis should be in direct contact with the take-up and supply reel sides.
3. Maintaining this condition, tighten Solenoid mounting screws, (1) and (2). At this time, push the Solenoid lightly to the plunger side in the direction of arrow (B)



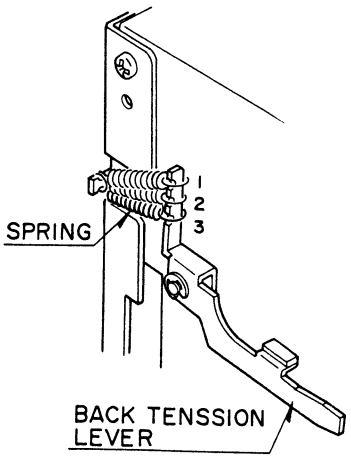
5.7 BRAKE ADJUSTMENTS

1. Remove the cover.
2. Adjust by bending portion (A) of the brake lever (076N) so that brake timings of the supply and take-up sides coincide with each other.
3. Set brake lever clearances to approximately 0.5 mm on both the supply and take-up sides.



5.8 BACK TENSION ADJUSTMENT

1. Alter the spring location, (1), (2), or (3), so that the back tension is between 3.5 g and 6 g.



6. ELECTRICAL ADJUSTMENTS

Precautions before Adjustment

1. Before playing the test tape back, thoroughly demagnetize the heads, capstan and similar metal parts using an eraser as the test tape-recorded tone is easily erased.
2. Do not place the test tape on any measuring instrument.
3. Do not put the test tape near a place where the eraser is used.
4. Method of Demagnetization: – Turn the eraser power switch on at a remote position far away from the heads. Bring the eraser close to the heads, capstan and other parts to be demagnetized, and move it up and down four or five times to demagnetize. Slowly separate the eraser far away from the parts, and turn the power switch off.
5. Do not use any magnetized adjusting tool. When using it, demagnetize it from time to time in the course of each adjustment.
6. Do not turn semi-fixed resistor more than needed.
7. Do not apply locking bond excessively.

Definitions

1. The "normal playback state" is an operating state of the tape deck which plays back the MTT-150 test tape and is adjusted so as to produce a 580mV output at the LINE OUTPUT terminal with the load assuming the measuring instrument input impedance of greater than 100 kΩ and with the TAPE SELECTOR switch set at the NORMAL position.
2. The "normal recording state" is an operating state of the tape deck which records a 1 kHz signal to a specified recording level for which the recording level control is adjusted with the 1 kHz signal applied at a specified input level to the MIC terminal.

   In the normal recording state, therefore, this tape deck is set up with the level control to the state that the Peak Level Displays may illuminate to the 0 VU with a 1 kHz, 1 mV input signal applied.

6.1 HEAD AZIMUTH ADJUSTMENT

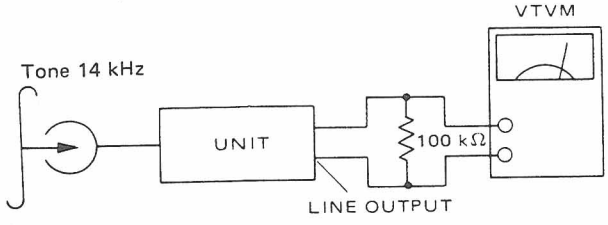
SET UP

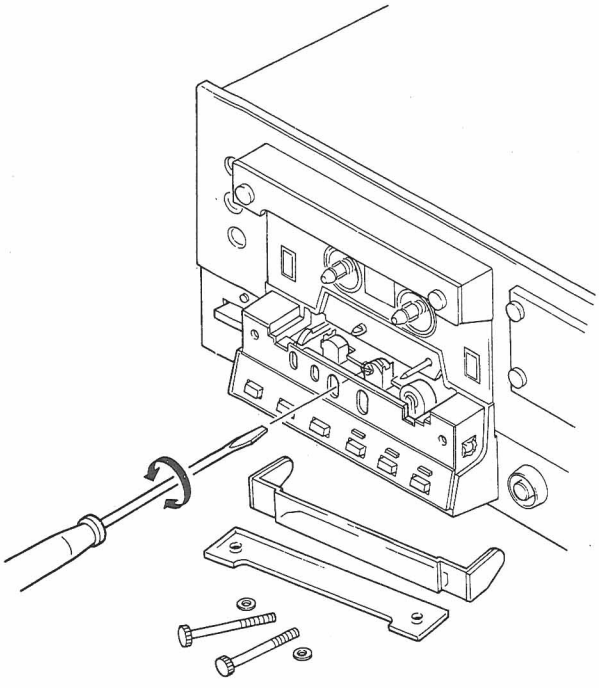
1. Power voltage:- 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. TAPE SELECTOR switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal used:- LINE OUTPUT.
5. Test tape used: -MTT-216

PROCEDURES

1. Play the 14 kHz portion of the test pate MTT-216 back. Adjust the head azimuth adjusting screw for maximum VTVM read.
2. STEREO UNIT ONLY. If the peak output reads of the right and left channels are different, set the screws to obtain the mechanical center between the peaks.

Mode: Playback





CAUTION

After adjustment, repeat the playback and stop setting a few times to make certain of no head azimuth deviation.

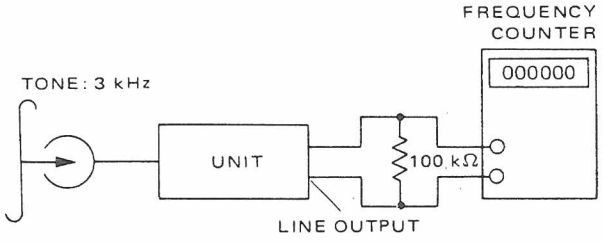
6.2 TAPE SPEED ADJUSTMENT

SET UP

1. POWER VOLTAGE
   50Hz/60Hz AC voltage reted for the unit to be used in a market country.
2. TAPE SPEED SELECTOR switch position:- Standard speed 1-7/8 Ips (4.75 cm/s)
3. Output terminal:- LINT OUT
4. Test tape used:- MTT-111 (3 kHz tone)
5. Unit position:- Vertical

PROCEDURES

1. Play the mid position of the test tape MTT-111 back. (standard speed)
   Adjust the tape speed adjusting semi-fixe resistor in Motor (M001) for 2990 to 3010 counter indication.
2. Play the mid position of the test tape MTT-111 back (High speed).
   Adjust the tape speed adjusting R321 for 5990 to o 6010 counter indicator.



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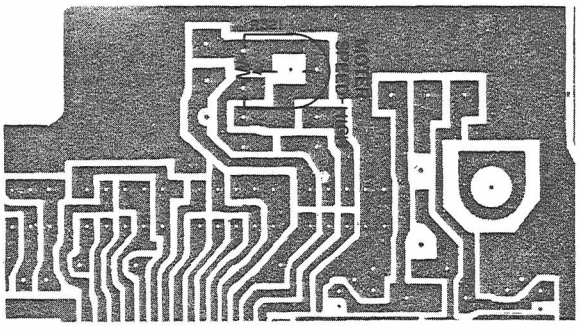


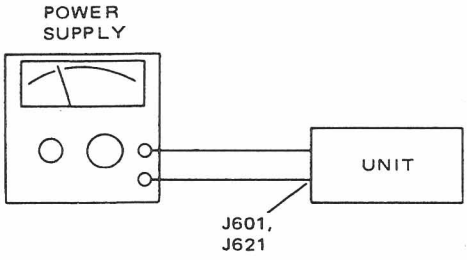
CAUTIOS

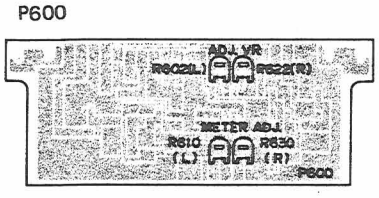
1. For adjustment the unit should be set up in the normal operating confition.
2. Do not proceed the semi-fixed resistor more turns than needed.
3. Do not proceed with adjustment after the unit.
4. If a strong shock or similar vibration is applied to the unit after adjustment, make certain that the measured tape speed had not changed.

6.3 METER ADJUSTMENT

SET UP
TAPE SELECTOR switch position:- NORMAL

Procedures
1. Apply a 1 kHz −60dB signal from the MIC Terminal
2. Select the Rec-Pause mode.
3. Adjust the mic volume to provide 3V DC at J601 (L ch.). (J621 for R ch.)
4. Adjust resistor trimmer R602 (R622 for R ch.) so that the "0" display LED lights.
5. Adjust the mic volume to provided 580 mV AC at J120 (J220 for R ch.)
6. Adjust R610 resistor trimmer (R630 for R ch.) so that the "+2 [D C] display LED lights.



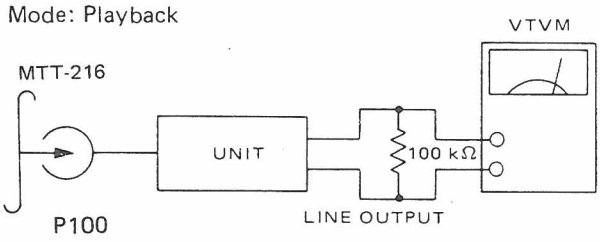


6.4 PLAYBACK EQUALIZER ADJUSTMENT

SET UP
1. Power voltage:- 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. TAPE SELECTOR switch position:- NORMAL.
3. Load:- Measuring instrument input impedance.
4. Output terminal:- LINE OUTPUT.
5. Test tape used: -MTT-216.

PROCEDURES
1. Play the test tape MTT-216. Let the 315 Hz signal level be reference as 0 dB.
2. Adjust R115 and R215 (5 kΩ each) for 10 kHz frequency response of 0 to -1 dB in reference to the 315 Hz signal level.
3. Proceed both for the right and left channels in the same manner.
4. Note that clockwise turning of R115 and R215 will increase the 10 kHz signal output level.

Mode: Playback



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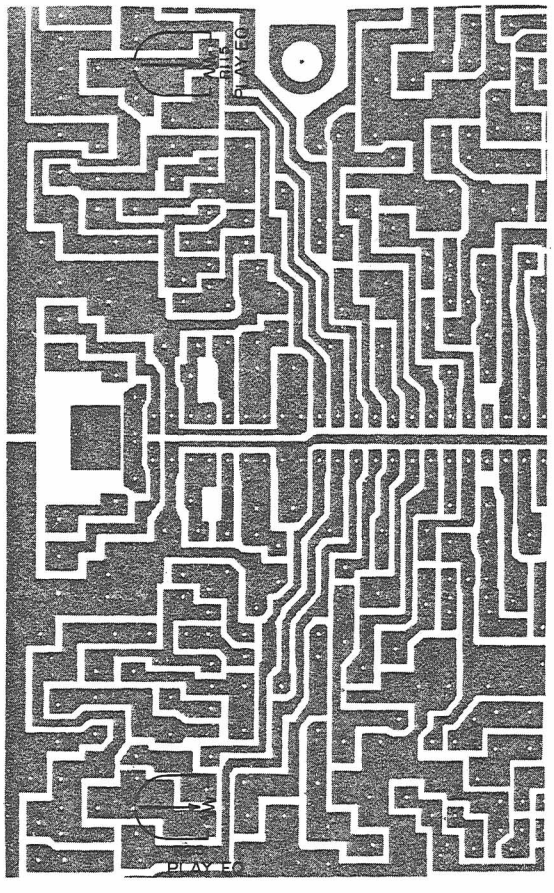


6.5 PLAYBACK OUTPUT LEVEL ADJUSTMENT

SET UP

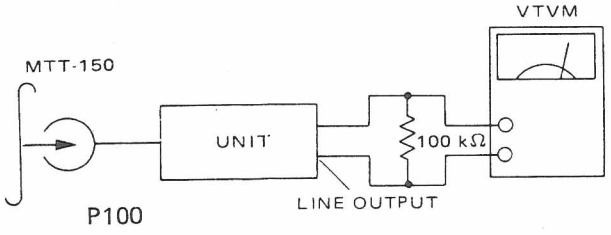
1. Power Voltage: 50 or 60Hz AC voltage reted for the unit to be used in a market country.
2. TAPE SPEED SELECTOR switch position: STANDARD 1-7/8 Ips (4.75 cm/s).
3. Output terminal:- J120, J220.
4. TAPE SELECTOR switch position:- NORMAL
5. Load:- Measuring instrument input impedance.
6. Test tape used:- MTT-150

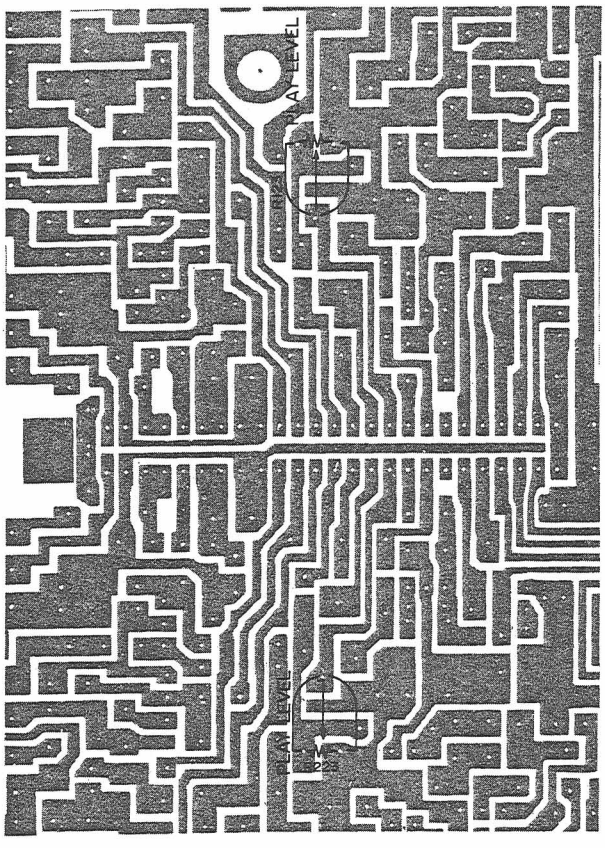
PROCEDURES

1. Play the test tape MTT-150 back.
   Adjust R123 and R223 (50 kΩ each) for 580 mV playback output level.
2. Proceed both for the right and left channels in the same manner.

2. This adjustment should be performed after the one for the meter.

Mode: Playback





6.6 RECORDING CURRENT ADJUSTMENT

Set up:

1. Power voltage:- 50 or 60 Hz AC voltage rated for the unit in the destination country.
2. Input signal: :- 1 kHz, –60 dB MIC
3. Output terminals:- LINE OUT PUT
4. TAPE SELECTOR switch position;- SPECIAL/ CrO_2
5. TAPE SPEED SELECTOR:- STANDARD or HIGH
6. Load:- Measuring instrument input impedance

Procedure:

1. In Rec mode, adjust the mic volume to 0VU.
   Line Out output at this time is reference level 0dB.
2. Adjust trimmers to provide a 0dB output level when tape is recorded and played back.

STANDRAD speed	R155 (L ch.)	R255 (R ch.)
HIGH speed	R154 (L ch.)	R254 (R ch.)

6.7 RECORDING BIAS CURRENT ADJUSTMENT

SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Tape Speed selector switch position:- standard (1-7/8 IPS, 4.75 cm/s).
3. Output terminal.: R101, R201
4. Load:- Measuring instrument input impedance.

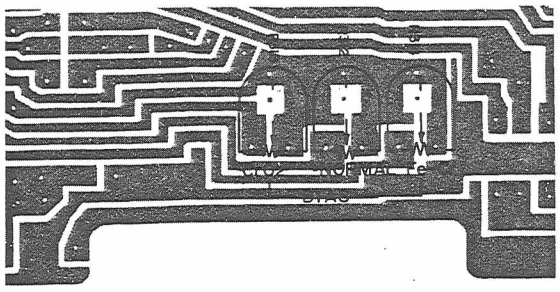
Procedure:

1. Select Rec-Pause mode.
2. Connect a VTVM across R101 (R201 for R ch.)
3. Adjust trimmers to provide the following indications on the VTVM:
   (1) Tape Selector in NORMAL position:
   Adjust R410 (L ch.) and R411 (R ch.) to provide 450 mV.
   (2) Tape Selector in SPECIAL/CrO_2 position:
   Adjust R313 (common for L and R) to provide 650 mV.
   (3) Tape Selector in Fe-Cr position:
   Adjust R314 (common for L and r) to provide 510 mV.
   (4) Tape Selector in METAL position:
   Adjust R312 (common for L and R) to provide 1,200 mV.

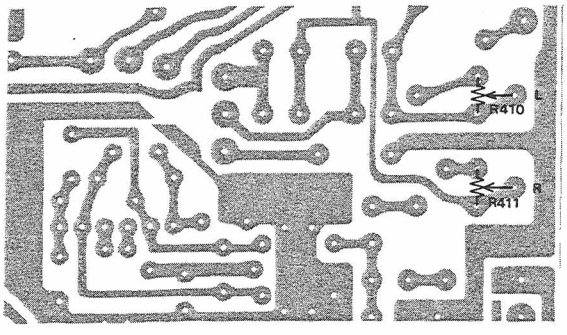
NOTE 1: Adjust (1) NORMAL position first. If after adjusting other positions R410 or R411 are altered so readjust for all the other positions.

NOTE 2: The above adjustments are tentative. Finally, adjustments to provide Rec-Playback frequency characteristics falling within specified ranges are necessary.

P100



P400



6.8 RECORDING EQUALIZER ADJUSTMENT

SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input level:- –60 dBV
3. Output terminal:- R101, R201
4. TAPE SELECTOR switch position:- NORMAL.

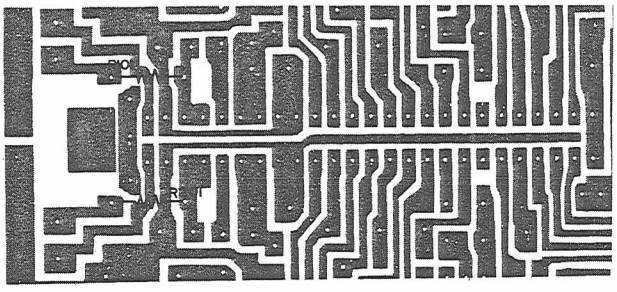
PROCEDURES

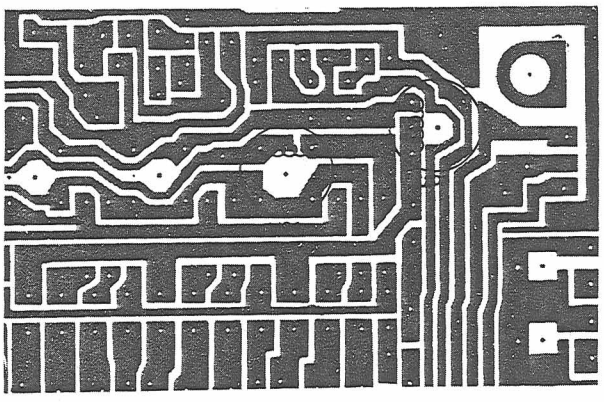
1. Stop the recording bias current osillator.
   Cutting out the bias circuit Jumper Wire. Remove wires from J314 and

2. Set up the unit to the normal recording state. Reduce the input level by 20 dB.
3. Set the TAPE SELECTOR switch to the NORMAL position. Set the audio-frequency osillator to 15.5 kHz.
   Connect the VTVM R101, R201. Adjust L105 and L205 for maximum VTVM read TAPE SPEED SELECTOR switch position:- Standard).
4. In turn, set the TAPE SELECTOR switch to the High position.
   Set the audio-frequency osillator to 22 kHz. Connect the VTVM R101, R201. Adjust L104 and L204 for maximum VTVM read.
5. After adjustment, release the recording bias.
6. Proceed both for the right and left channels in the same manner.

CAUTION

The adjusting rod should be non-metalic.





6.9 RECORD-PLAYBACK FREQUENCY RESPONSE ADJUSTMENT

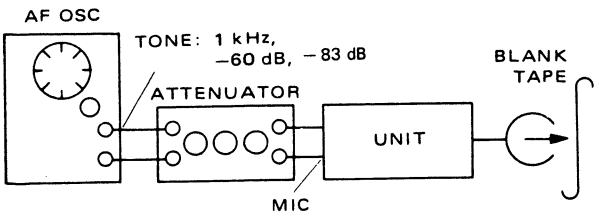
SET UP:

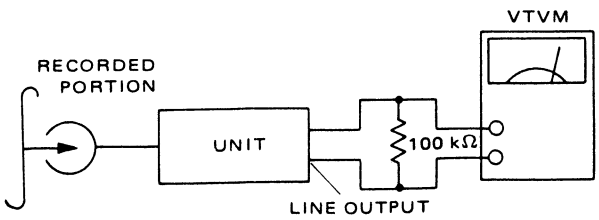
1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. TAPE SELECTOR switch position:- NORMAL
   TAPE SPEED SELECTOR switch position:- STANDARD & HIGH
3. Input signal:
   1 kHz, −60dB
4. Output terminal: LINE OUT
5. Load:- Measuring instrument input impedance.
6. Playback output level:- same as the recorded signal level.
7. Blank tape used:- AC-211, AC-511, CS-30 & AC701

Procedures:

1. Connect the input signal to the MIC terminal. Set up the unit to the normal recording state.
2. In turn, reduce the input level by −23 dB with the use of the attenuator. Record the 1 kHz and 10 kHz tones.
3. Play the 1 kHz 25 dB down recorded tone back as 0 dB.
   Adjust the recording bias current until the 10 kHz response is within ±0.5 dB as referened to the 1 kHz, 0 dB response.
4. Follow similar sequence for the other TAPE SELECTOR switch positions (Fe-Cr, CrO_2, and Metal) and adjust the bias current so the frequency response falls within the specified range.
5. When the tape speed is High, adjust Rec. Eq for all the TAPE SELECTOR switch positions to provide response within specifications.
6. Proceed both for the right and left channels in the same manner.
7. If the recording current is recorded reduced in the above adjustment, be sure to measure the distortion.

Mode: Record





	Standard		High	
Tape	EQ	Bias	EQ	Bias
Normal	○	⊗	○	—
FeCr	Fix	◎	Fix	—
CrO_2	Fix	◎	Fix	—
Metal	Fix	◎	Fix	—

1. Columns marked ○, ◎, and ⊗ include adjusting arrangement.
2. ○Concerning fixed EQ columns, only Normal Tape is marked adjustable but if readjusted for Normal Tape, the other tape positions are also affected.
3. ⊗ includes trimming controls for both L ch. and R ch. (2)
   ◎ includes a trimming control common for L ch. and R ch. (1)

6.10 BIAS TRAP ADJUSTMENT

SET UP

1. Power voltage. 50 or 60 Hz AC voltage rated for the unit to be used in a market country.
2. LEVEL CONTROL position:- Volume Max
3. TAPE SELECTOR switch position:- METAL

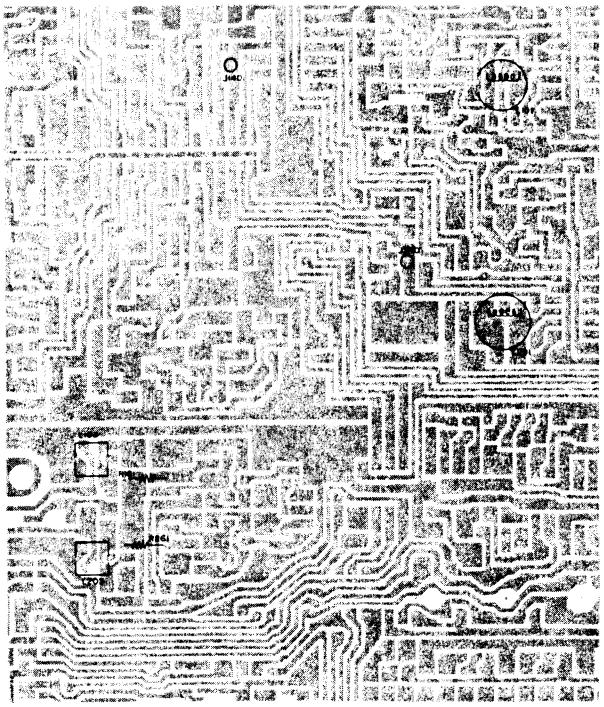
PROCEDUES

1. Set up the unit in the recording mode of operation.
2. Connect the VTVM to J140 and J240.
   Adjust L101 and L201 for minimum VTVM read.
3. Inturn, connect the VTVM to R161, and R261.
   Adjust L103 and L203 for minimum VTVM read.

COUTIONS

1. If the leak bias is less than the specified value, the bias trap needs not to be adjusted since the adjusting coil is factoru preset.
2. The adjusting rod used should be nonmetalic.

P100



6.11 19kHz FILTER ADJUSTMENT

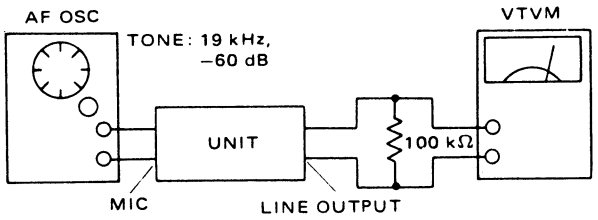
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input Level:- 19 kHz −60 dB
3. TAPE SELECTOR switch position:- NORMAL.
4. Output terminal:- Line out
5. Load:- Measuring instrument input impedance.

PROCEDURES

1. Connect the 19 kHz, −60 dB input signal to the Mic input terminal. Adjust the level control for 0 VU.
2. In turn, MPX FILTER switch to the ON position. Adjust the L102 and L202 for minimum output level at the Line out.
3. Proceed both for the right and left channels in the same manner.

Mode: Record



CAUTIONS

1. The 19 kHz input signal should be as precise as 19 ± 0.5 kHz
2. If the filter characteristic is better than −30 dB, the adjusting coil needs not to be adjusted since it is factory set.

6.12 PHASE COMPENSATOR ADJUSTMENT

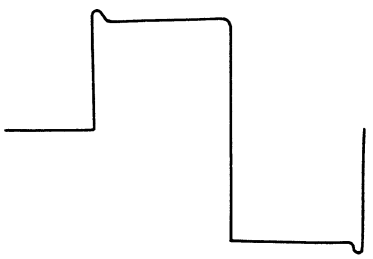
SET UP

1. Power voltage:- 50 or 60Hz AC voltage rated for the unit to be used in a market country.
2. Input level:- 1 KHz, −60dB (square wave).
3. Input terminal:- MIC.
4. TAPE SPEED SELECTOR: HIGH position.
5. Dolby:- OFF
6. MPX:- OFF
7. Output terminal:- LINE OUTPUT (connect oscilloscope)

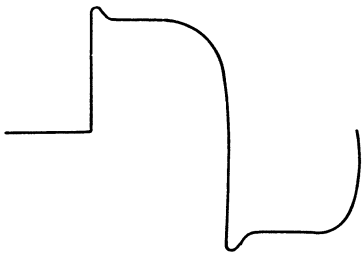
Procedures

1. Set the tape in recording mode.
2. Depress the PAUSE button to set the tape in REC-PAUSE mode.
3. Adjust the MIC volume control until the LED meter indicates 0VU.
4. Reduce the MIC input level by 10 dB (−70 dB)
5. Under this condition, release the REC-PAUSE mode and start recording. Play the recorded tape and adjust R183 and R283 until the waveform shown below is obtained. If required, repeat recording and playback.

OK



NG



6.13 TAPE SLACK PREVENTION CIRCUIT ADJUSTMENTS

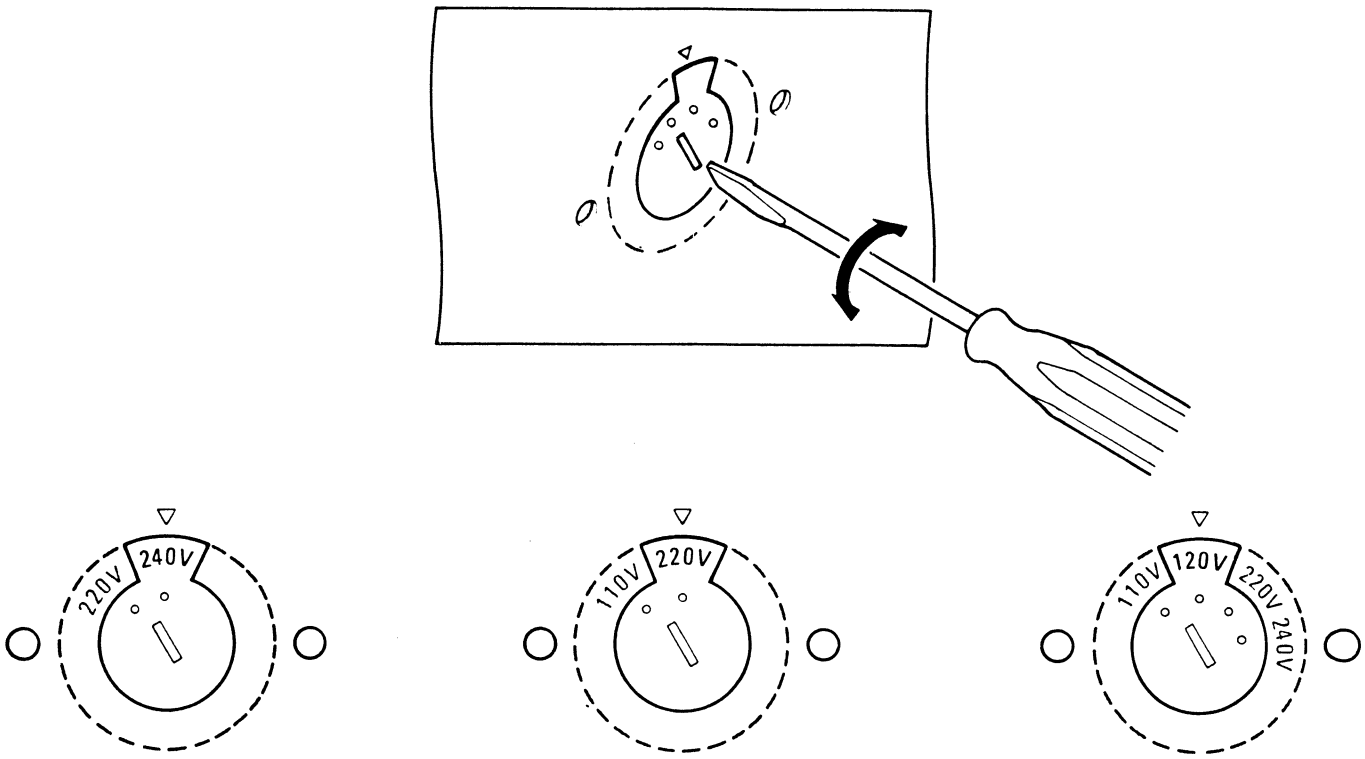
1) a. Select Stop mode.
   b. Insert a torque cassette.
   c. Adjust R526 so that at this time the torque becomes 35 to 50 g.cm.

NOTE: This circuit functions only for a second or two after switching the power on. Therefore, the torque cassette procedure should be repeated several times to adjust to the specified torque.

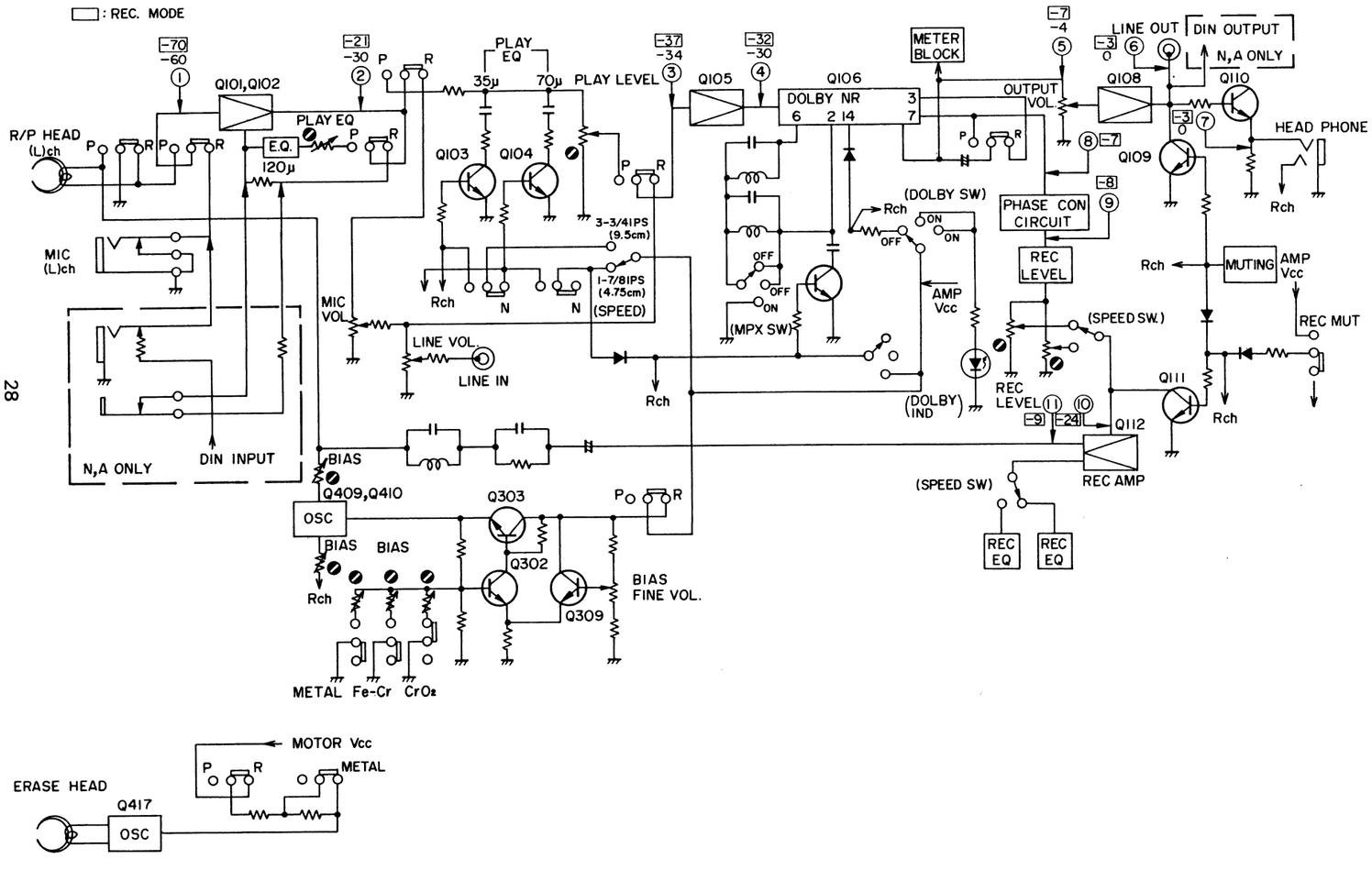
7. VOLTAGE CONVERSION

To convert the unit to a different power source voltage, change the position as illustrated in the drawing below.

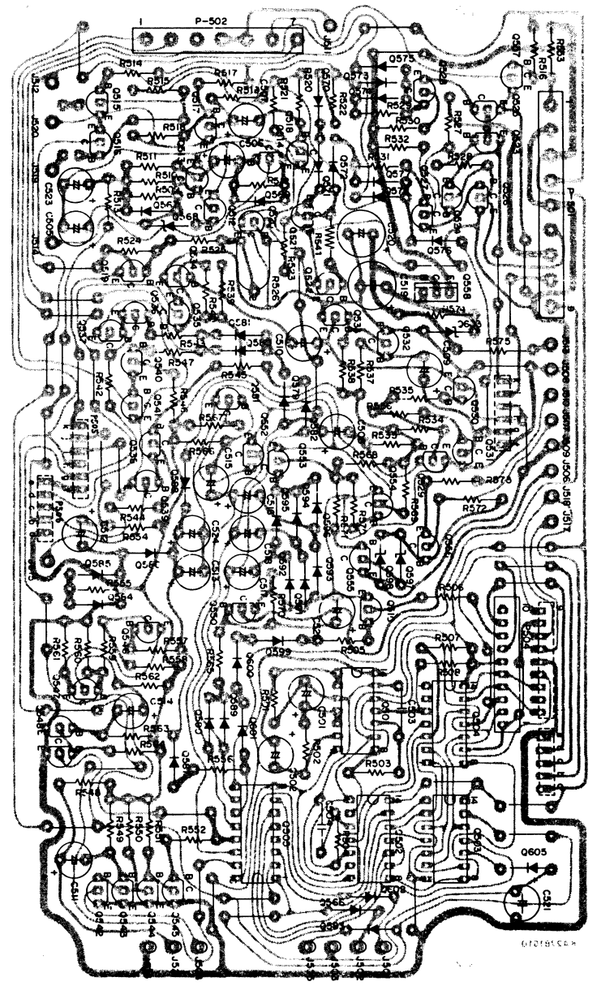
CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE. DO NOT DISASSEMBLE THE VOLTAGE SELECTOR ABSOLUTERY.

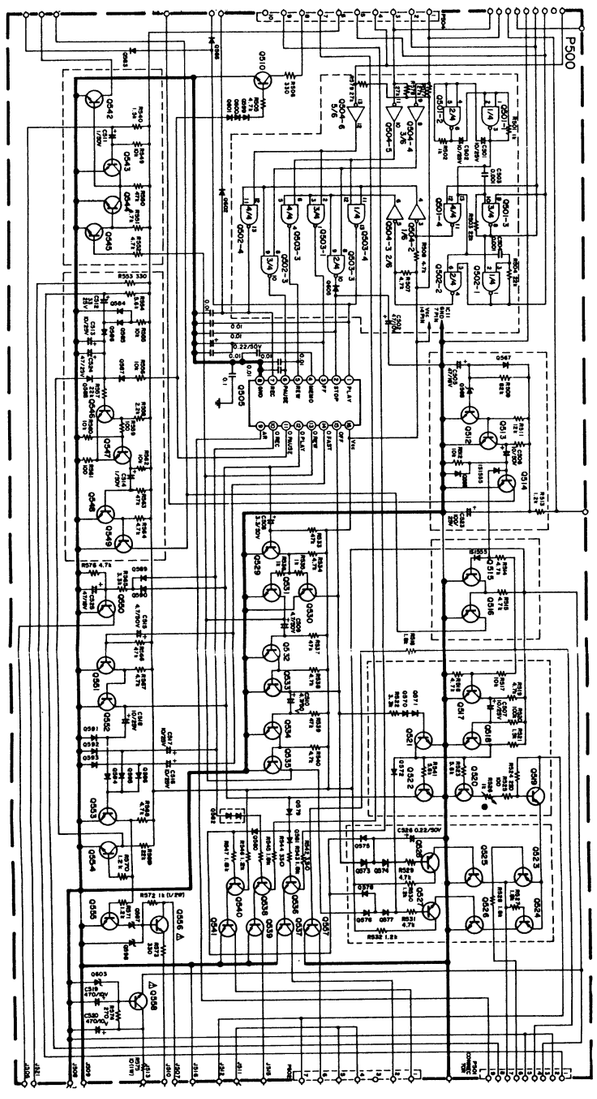


NOTE ON SAFETY: THE PARTS MARKED WITH ⚠ ARE IMPORTANT PARTS ON THE SAFETY. PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBERS WITHOUT FAIL.

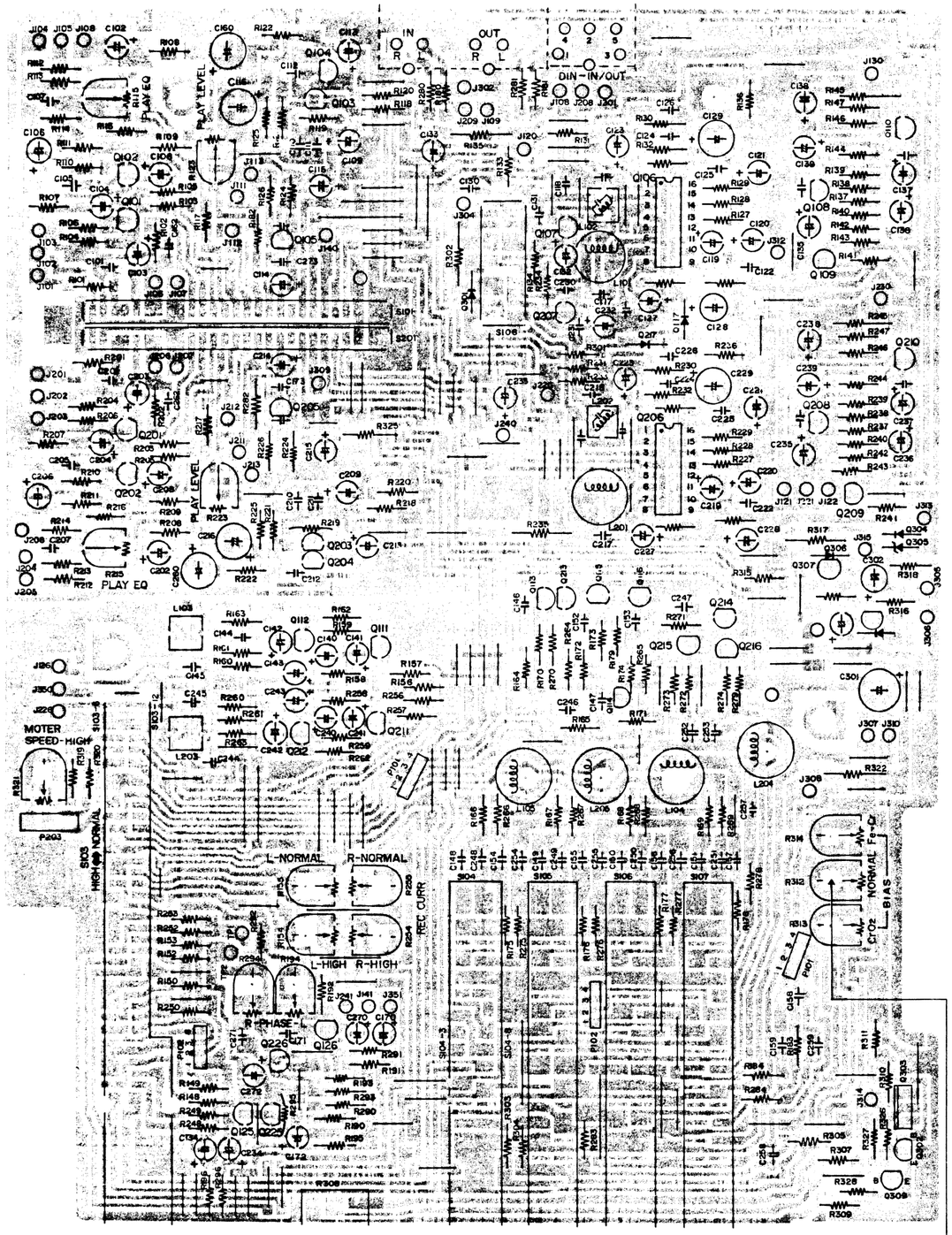


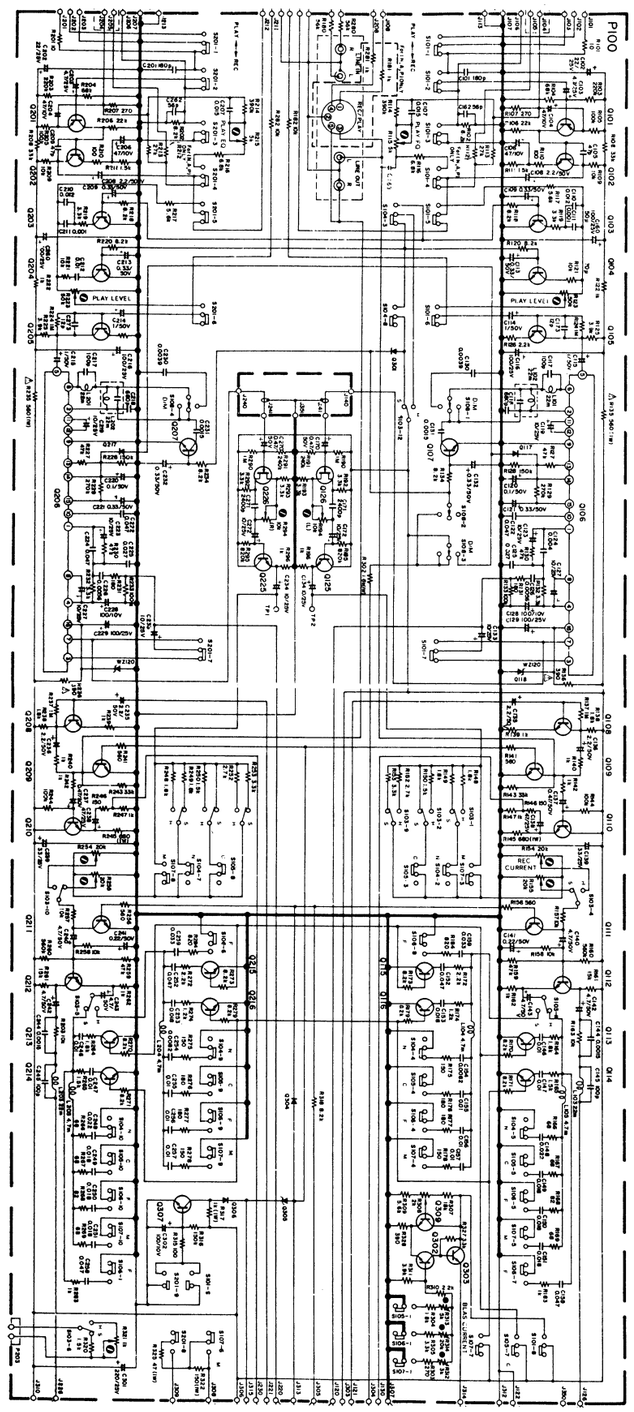
LOGIC CONTROL SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P500





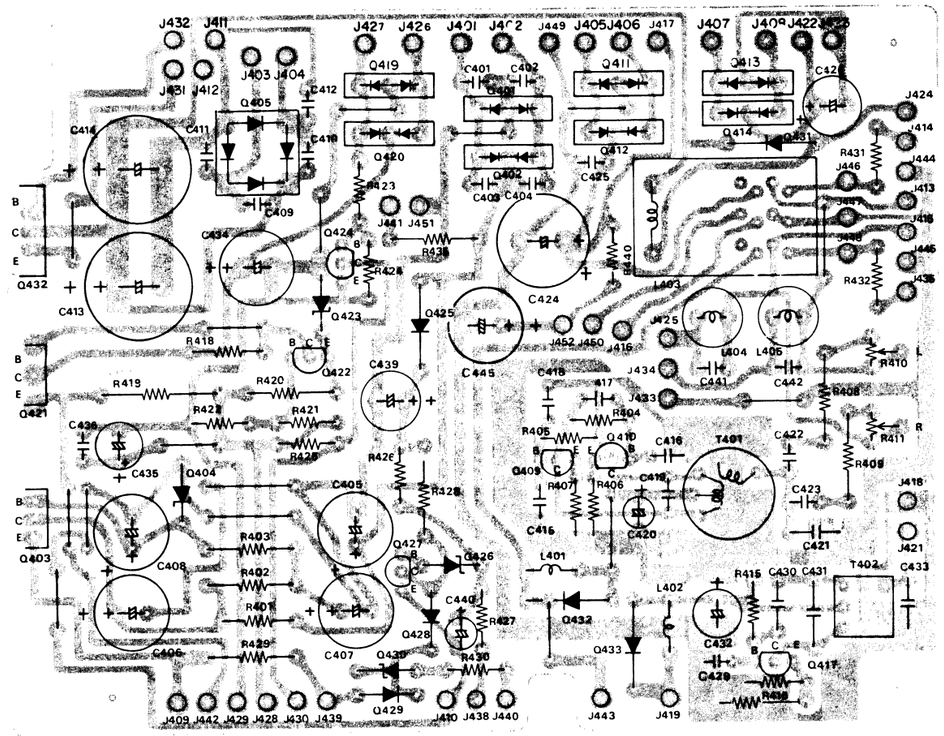
PRE-AMP SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P100





The operation of the standard speed is similar to that of the high speed.

POWER SUPPLY SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P400



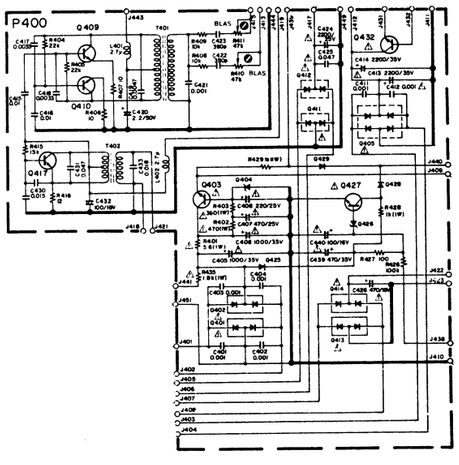
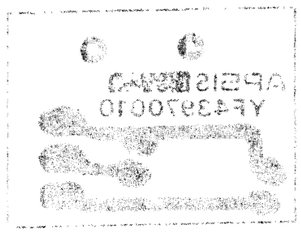
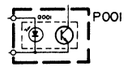
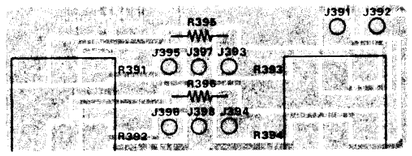


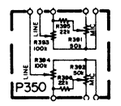
PHOTO CAPLER SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P001



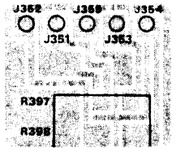


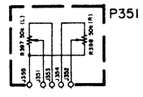
INPUT VOL. SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P350



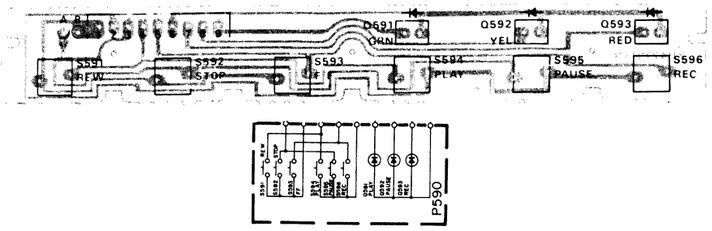


OUTPUT VOL. SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P351





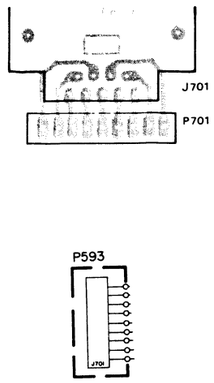
LOGIC SWITCH SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P590



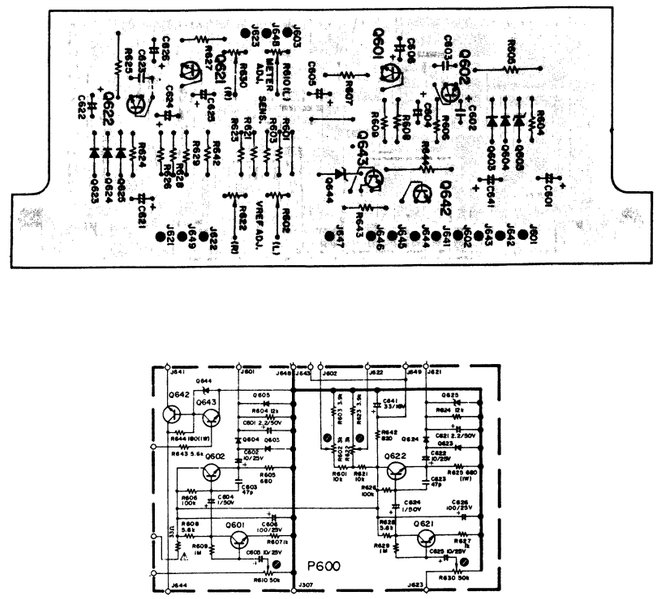
MECHA STOP SWITCH SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P591

MECHA STOP SWITCH SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P592

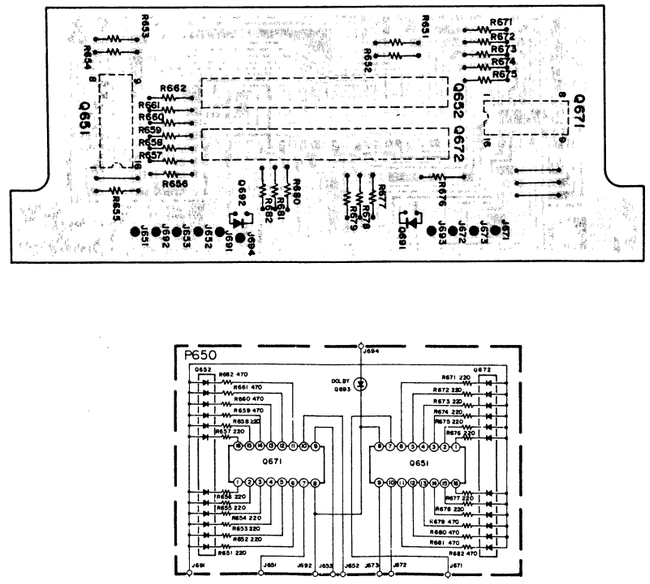
REMOTE SWITCH SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P593



LED METER AMP SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P600

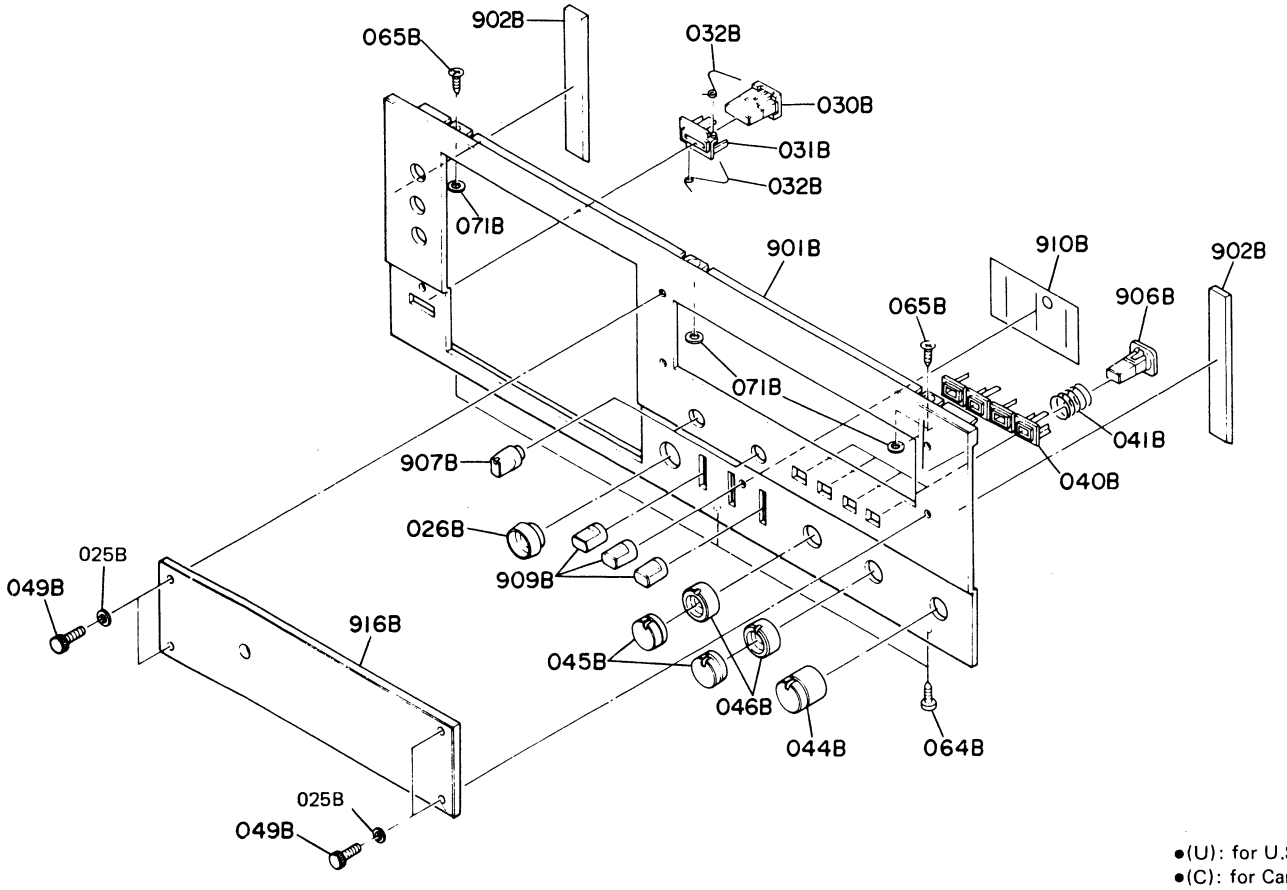


LED METER SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS – P650



EXPLODED VIEWS AND PARTS LIST

[P01-99] FRONT PANEL

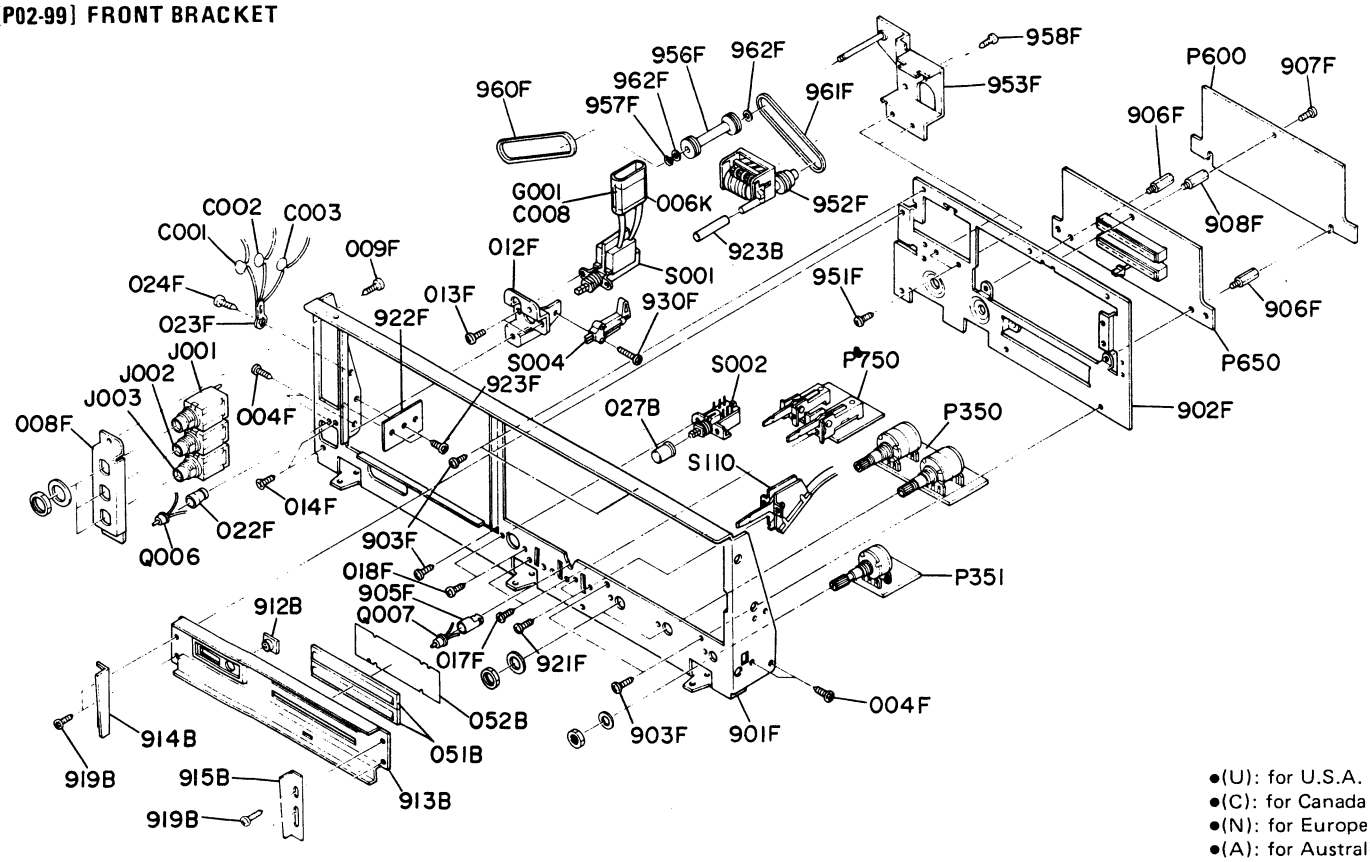


- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
A	1	1			4278063400	Front Panel Assembly
A1			1	1	4278063410	Front Panel Assembly
026B	1	1	1	1	4276259010	Bush, Rec Mute
031B	1	1	1	1	2127259010	Bush, Power Switch
040B	4	4	4	4	2112259030	Bush, Tape Selector
901B	1	1			4278063010	Escutcheon, Front Panel
901B			1	1	4278063020	Escutcheon, Front Panel
902B	2	2	2	2	4279118010	Spacer
910B	1	1	1	1	4280107010	Sheet, Lever Switch
025B	4	4	4	4	59046502G9	Washer
071B	3	3	3	3	59030808P0	Washer

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
030B	1	1	1	1	2127154010	Knob, Power Switch
032B	2	2	2	2	2127115010	Spring
041B	4	4	4	4	2112115010	Spring
044B	1	1	1	1	4278154010	Knob, Output
045B	2	2	2	2	4278154020	Knob, Record
046B	2	2	2	2	4278154030	Knob, Record
049B	4	4	4	4	4279112020	Shaft, Meter Window
064B	3	3	3	3	51280306B0	B.H. Tapped Screw B3 x 6
065B	2	2	2	2	51500306B0	F.H. Taptite Screw F3 x 6
906B	4	4	4	4	2112154010	Knob Tape Selector
907B	2	2	2	2	4276154010	Knob, Speed/Bias
909B	3	3	3	3	2970154020	Knob, Lever Switch
916B	1	1	1	1	4278158010	Window, Dial

[P02-99] FRONT BRACKET

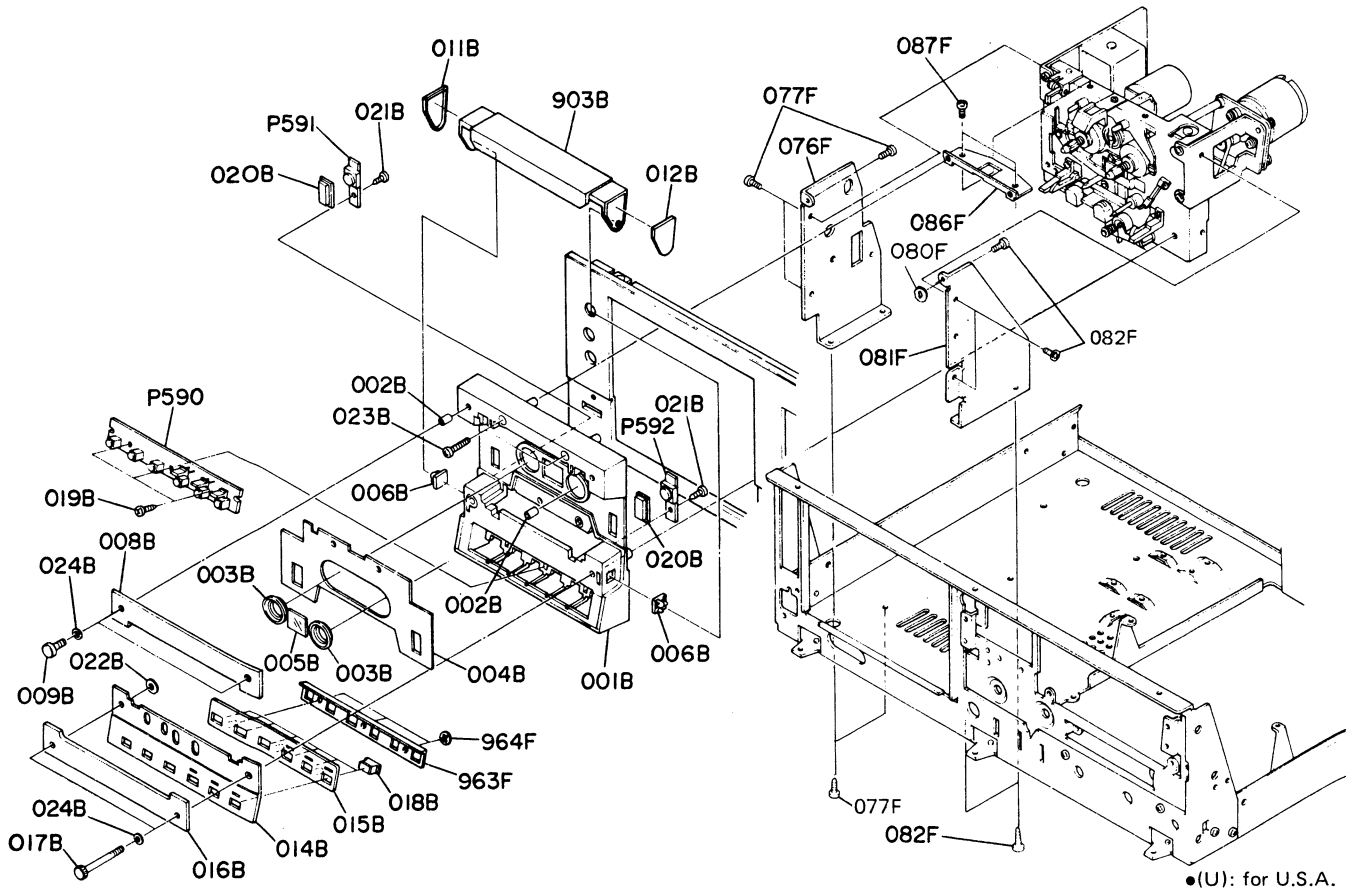


- •(U): for U.S.A.
- •(C): for Canada
- •(N): for Europe
- •(A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
E	1	1	1	1	4278302400	Dial Assembly, LED
051B	2	2	2	2	2127355010	Lens, LED Meter
052B	1	1	1	1	2129303040	Mask, LED Lens
912B	1	1	1	1	3448259110	Bush, Countor
913B	1	1	1	1	4278302010	Dial, LED Meter
027B	1	1	1	1	4279154070	Knob, Rec Mute
914B	1	1	1	1	4279303020	Mask, Dial
915B	1	1	1	1	4279303040	Maak, Dial
919B	4	4	4	4	51280306B0	B.H. Tapped Screw B3 x 6
923B	1	1	1	1	4278067010	Cap, Counter
004F	4	4	4	4	51280306B0	B.H. Tapped Screw B3 x 6
008F	1	1	1	1	4279160130	Bracket, Jack
009F	1	1	1	1	51280306B0	B.H. Tapped Screw B3 x 6
012F	1	1	1	1	4279160140	Bracket, Power Switch
013F	2	2	2	2	51100306A9	B.H. M. Screw B3 x 6
014F	2	2	2	2	51280306B0	B.H. Tapped Screw B3 x 6
017F	4	4	4	4	51100306A9	B.H.M. Screw B3 x 6
018F	2	2	2	2	51100306A9	B.H.M. Screw B3 x 6
022F	2	2	2	2	4279271010	Holder, LED
023F	1	1	1	1	62031650W0	Lug
024F	1	1	1	1	51280306B0	B.H. Tapped Screw B3 x 6
901F	1	1	1	1	4279160310	Bracket, Front Chassis
902F	1	1	1	1	4278160050	Bracket, Sub
903F	6	6	6	6	51280306B0	B.H. Tapped Screw B3 x 6
906F	2	2	2	2	4276101010	Support
907F	1	1	1	1	51100306A9	B.H.M. Screw B3 x 6
908F	1	1	1	1	2887101030	Support
921F	2	2	2	2	51100306A9	B.H.M. Screw B3 x 6
922F			1	1	4279120010	Insulator
923F			2	2	51280304B0	B.H. Tapped Screw B3 x 6
930F	1	1	1	1	51060208A9	P.H.M. Screw P2 x 8
905F	1	1	1	1	4279271010	Holder, Timer LED

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
951F	2	2	2	2	51280306B9	B.H. Tapped Screw B3 x 6
952F	1	1	1	1	4278052010	Counter
953F	1	1	1	1	4278160500	Bracket (K) Counter
956F	1	1	1	1	3448262010	Pulley
957F	1	1	1	1	64052500R0	RG Ring, CT Type
958F	2	2	2	2	51100306A9	B.H.M. Screw B3 x 6
960F	1	1	1	1	4278264010	Belt
961F	1	1	1	1	4278264020	Belt
962F	2	2	2	2	59035402G9	Washer
006K	1	1			2219120010	Insulator
006K			1	1	3926120010	Insulator
C001	1	1	1	1	DK18102300	Ceramic Cap, 0.001μF
C002	1	1	1	1	DK18102300	Ceramic Cap, 0.001μF
C003	1	1	1	1	DK18102300	Ceramic Cap, 0.001μF
⚠ C008			1	1	DF17223800	Film Cap. Spark Killer
⚠ G001	1				BF10400030	Cap. Comp. Spark Killer
⚠ G001		1			BF33300020	Cap. Comp. Spark Killer
J001	1	1			YJ01001110	Jack, Mic (L)
J001			1	1	YJ01001120	Jack, Mic (L)
J002	1	1			YJ01001110	Jack, Mic (R)
J002			1	1	YJ01001120	Jack, Mic (R)
J003	1	1	1	1	YJ01001360	Jack, Head Phone
⚠ S001	1	1			SP01010280	Push Switch, Power
⚠ S001			1	1	SP02010440	Push Switch, Power
S002	1	1	1	1	SP02010430	Push Switch
S004	1	1	1	1	SM01020400	Mini Switch, Muting
S110	1	1	1	1	SC00030030	Switch, 3 Position
Q006	1	1	1	1	HI10009300	L.E.D. Power
Q007	1	1	1	1	HI10009300	L.E.D. Timer Rec

[P04-99] ASSOCIATED MECHANISM FOR CASSETTE TAPE OPERATION

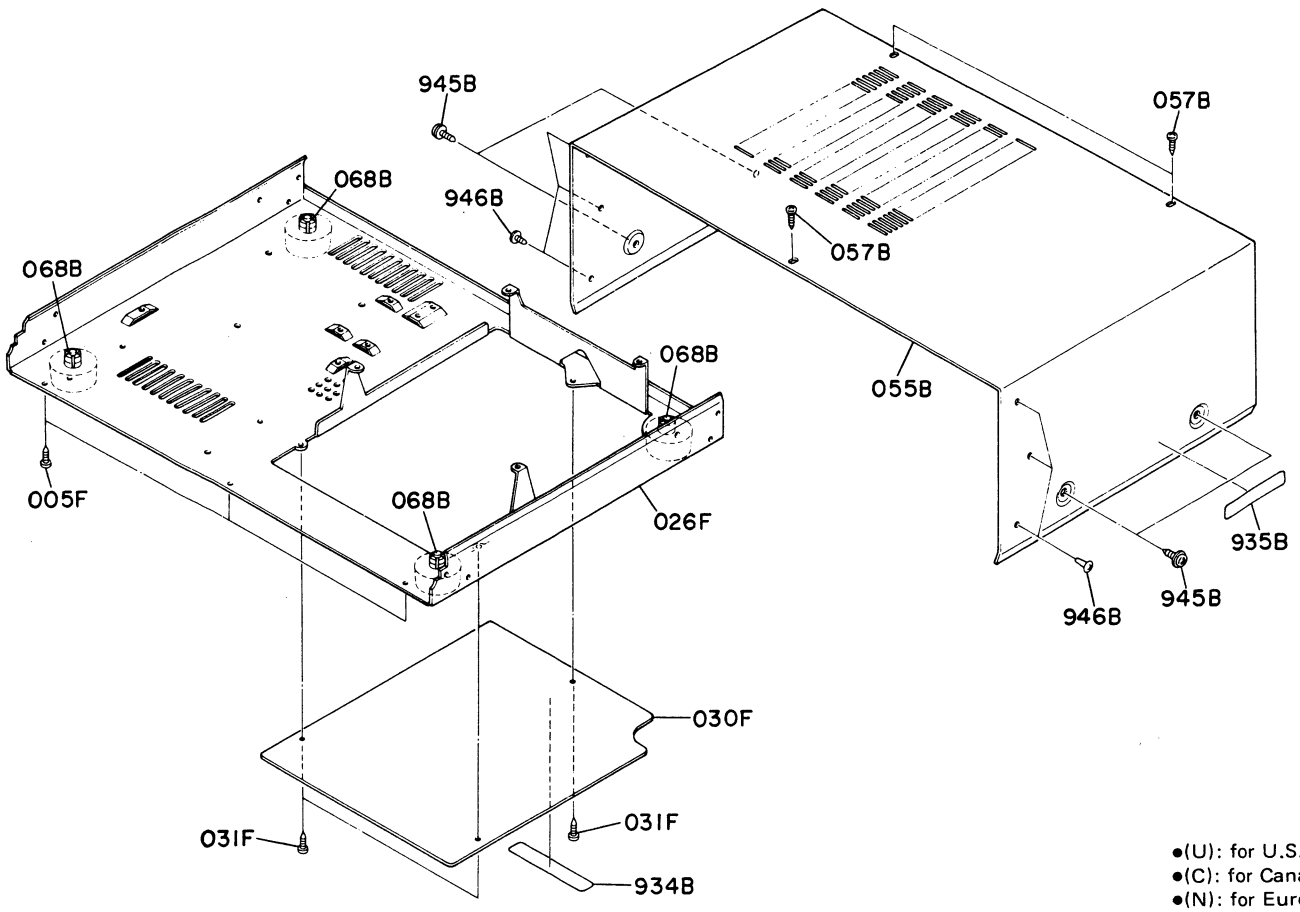


- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
B	1	1	1	1	4279053400	Cover Assembly
001B	1	1	1	1	4279053010	Cover, Mechanism
002B	2	2	2	2	65010306G0	Dodge Insert, S
003B	2	2	2	2	4279353010	Ring, Reel
004B	1	1	1	1	4279063050	Escutcheon, Cassette
005B	1	1	1	1	4279274010	Refrector
C	1	1	1	1	4279053410	Head Cover Assembly
011B	1	1	1	1	4279063060	Escutcheon, Head Cover (L)
012B	1	1	1	1	4279063070	Escutcheon, Head Cover (R)
903B	1	1	1	1	4279053020	Cover, Head
D	1	1	1	1	4279063420	Escutcheon Assembly
014B	1	1	1	1	4279063040	Escutcheon
015B	1	1	1	1	4279259010	Bush

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
006B	2	2	2	2	4279104010	Retainer
008B	1	1	1	1	4279063030	Escutcheon, Brand
009B	2	2	2	2	4279112020	Shaft
016B	1	1	1	1	4279158050	Window, Azimuth Cover
017B	2	2	2	2	4279112030	Shaft
018B	6	6	6	6	4279154020	Knob, Meca Button
019B	3	3	3	3	51282606B0	B.H. Tapped Screw B2.6 x 6
020B	2	2	2	2	4279154060	Knob, Senser
021B	2	2	2	2	51282606B0	B.H. Tapped Screw B2.6 x 6
022B	1	1	1	1	4280121010	Link
023B	2	2	2	2	5273031259	H.S. Head Bolt 3 x 12
024B	4	4	4	4	59046502G9	Washer
076F	1	1	1	1	4279160040	Bracket (L)
077F	6	6	6	6	51280306B0	B.H. Tapped Screw B3 x 6
080F	1	1	1	1	59030805P0	Washer
081F	1	1	1	1	4279160050	Bracket (R)
082F	5	5	5	5	51280306B0	B.H. Tapped Screw B3 x 6
086F	1	1	1	1	4279160160	Bracket
087F	2	2	2	2	51060303A9	P.H.M. Screw P3 x 3
963F	1	1	1	1	4280104010	Retainer
964F	3	3	3	3	64020300Q0	RG Ring, CS Type

[P03-99] TOP COVER & MAIN CHASSIS

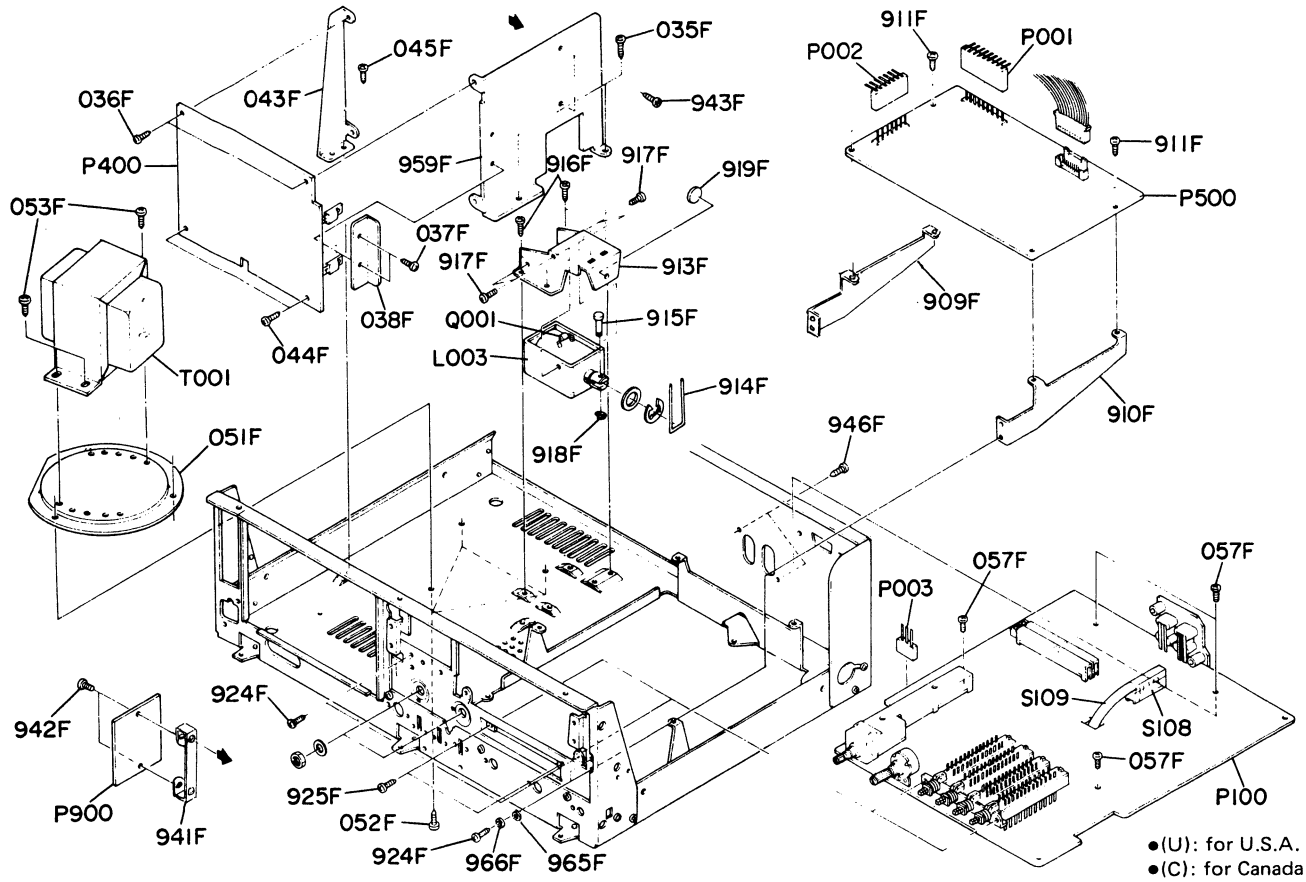


- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
055B	1	1	1	1	4279257010	Lid, Top Cover
057B	3	3	3	3	51280308U0	B.H. Tapped Screw B3 x 8
068B	4	4	4	4	2259057010	Leg
934B	1		1	1	3889861010	Label
934B		1			4113861020	Label
935B	1		1	1	2932861010	Label
935B		1			2911861140	Label
945B	4	4	4	4	5148040659	F. Washer Screw 4 x 6
946B	6	6	6	6	2991259010	Bushing

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
005F	3	3	3	3	51280306B0	B.H. Tapped Screw B3 x 6
026F	1	1	1	1	4279105010	Chassis
030F	1	1	1	1	4279257020	Lid
031F	3	3	3	3	51280306B0	B.H. Tapped Screw B3 x 6

[M01-99] P.W. BOARD & GENERAL PARTS

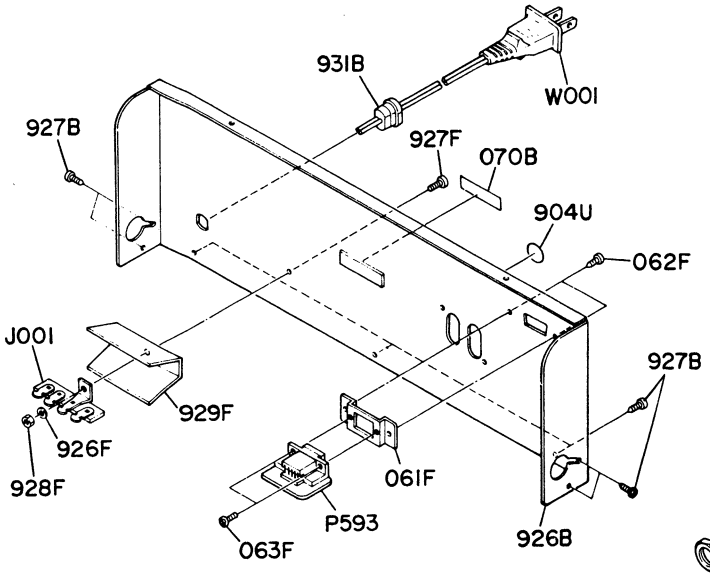


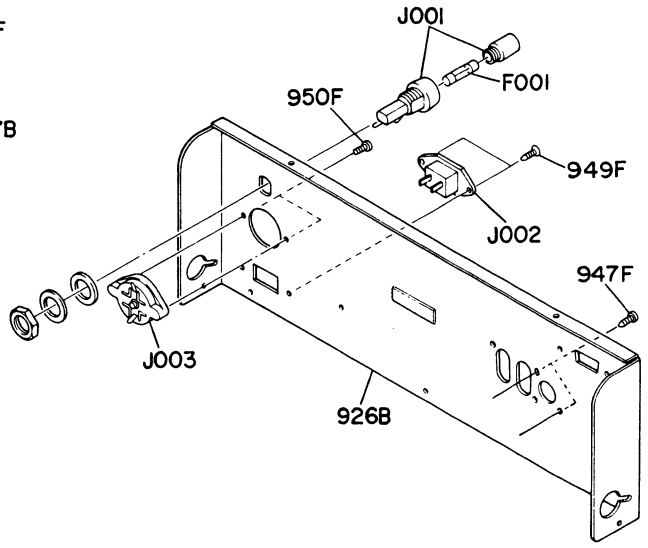
- ●(U): for U.S.A.
- ●(C): for Canada
- ●(N): for Europe
- ●(A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
035F	2	2	2	2	51280308B0	B.H. Tapped Screw B3 x 8
036F	2	2	2	2	51280310B0	B.H. Tapped Screw B3 x 10
037F	2	2	2	2	51280310B0	B.H. Tapped Screw B3 x 10
038F	1	1	1	1	4279005010	Clamper
043F	1	1	1	1	4279160060	Bracket
044F	2	2	2	2	51280310B0	B.H. Tapped Screw B3 x 10
045F	1	1	1	1	51280306B0	B.H. Tapped Screw B3 x 6
051F	1	1	1	1	4279160110	Bracket, Transf.
052F	3	3	3	3	51280406B0	B.H. Tapped Screw B4 x 6
053F	4	4	4	4	51280408B0	B.H. Tapped Screw B4 x 6
057F	4	4	4	4	51280306B0	B.H. Tapped Screw B3 x 6
909F	1	1	1	1	4278160080	Bracket
910F	1	1	1	1	4278160090	Bracket
911F	4	4	4	4	51280306B0	B.H. Tapped Screw B3 x 6
913F	1	1	1	1	4279160070	Bracket, Solenoid
914F	1	1	1	1	4279115020	Spring, Rec
915F	1	1	1	1	4279112010	Shaft
916F	4	4	4	4	5128030680	B.H. Tapped Screw B3 x 6
917F	4	4	4	4	51100305A9	B.H.M. Screw B3 x 5
918F	1	1	1	1	64000200R0	RG Ring, E Type
941F			1	1	3890160040	Bracket
942F			2	2	51100306A9	B.H.M. Screw B3 x 6
943F			2	2	51100306A9	B.H.M. Screw B3 x 6
959F	1	1	1	1	4279267010	Heat sink
965F	1	1	1	1	62030039W0	Washer (Spring)
966F	1	1	1	1	54110149A0	Flat Washer, L.
969F	1	1	1	1	54040302N0	Washer (Spring)

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
919F	1	1	1	1	4279056010	Buffer
923F	4	4	4	4	51280306B0	B.H. Tapped Screw B3 x 5
925F	2	2	2	2	51100306A9	B.H.M. Screw B3 x 6
946F	2	2	2	2	51280308U0	B.H. Tapped Screw B3 x 8
⚠ L003	1	1	1	1	ME10630010	Solenoid Coil, Rec
Q001	1	1	1	1	HD20023100	Diode 10E-1
S108	1	1	1	1	SS04030130	Slide Switch
S109	1	1	1	1	SB11910010	Switch Band, FLX
⚠ T001	1				TS16621010	Power Transformer
⚠ T001			1	1	TS16621020	Power Transformer
T00'		1			TS16621040	Power Transformer
P001	1	1	1	1	YJ06001430	Jack (9P)
P002	1	1	1	1	YJ06001260	Jack (7P)
P003	1	1	1	1	YJ06001040	Jack (3P)

[P05-99] REAR PANEL





- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australi

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
070B	1	1	1	1	2112265010	Indicator, Serial No.
926B	1	1			4278160020	Bracket, Rear Panel
926B			1	1	4278160030	Bracket, Rear Panel
927B	7	7	7	7	51280306U0	B.H. Tapped Screw B3 x 6
931B	1	1			1455259030	Bushing
947B			1	1	4581861010	Lavel
061F	1	1	1	1	4279160120	Bracket, Remote Jack
062F	2	2	2	2	51280306U0	B.H. Tapped Screw B3 x 6
063F	2	2	2	2	51280306B0	B.H. Tapped Screw B3 x 6
926F	1	1			54040302A0	Spring Washer
927F	1	1			51100308S9	B.H.M. Screw B3 x 8
928F	1	1			53110303A9	Hexagon Nut
929F	1	1			4114120010	Insulator

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
947F			2	2	51280308U0	B.H. Tapped Screw B3 x 8
949F			2	2	51500308U0	F.H. Taptite Screw F3 x 8
950F			2	2	51280310U0	B.H. Tapped Screw B2 x 10
904U	1				9511101070	Label, UL
904U		1			2457861040	Label, CSA
J001	1	1			YL01040160	Terminal
J001			1	1	YJ08000290	Jack, Fuse Holder
⚠ J002			1	1	YP04000610	Plug, AC Inlet
⚠ J003			1	1	BY05080010	Voltage Selector
⚠ W001	1	1			YC02000140	A.C. Power Cord
⚠ F001			1	1	FS10080800	Fuse 0.8A

- (U): for U.S.A.
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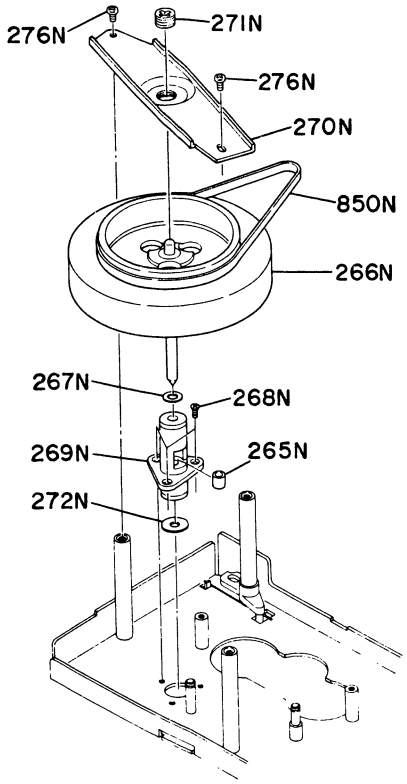
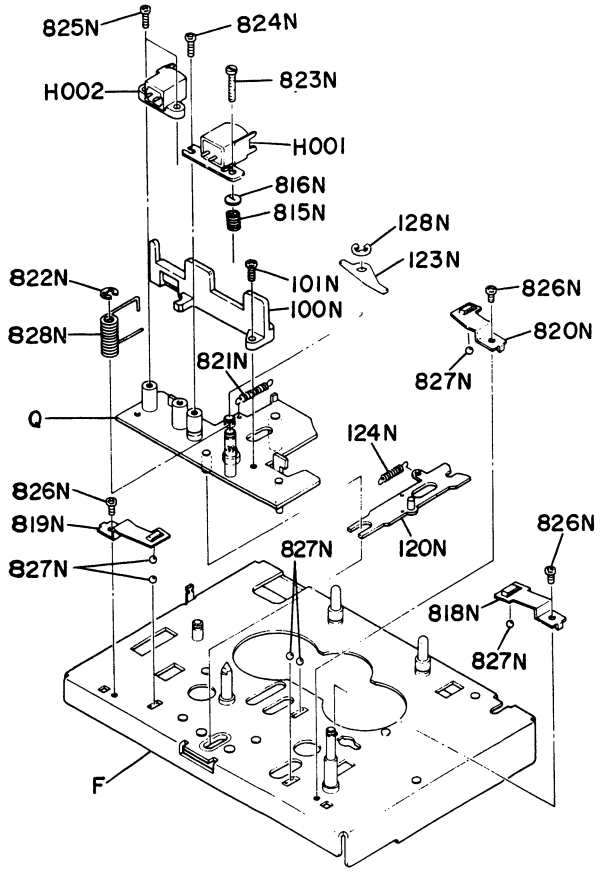
- (A): for Australia

[P07-99] FLYWHEEL

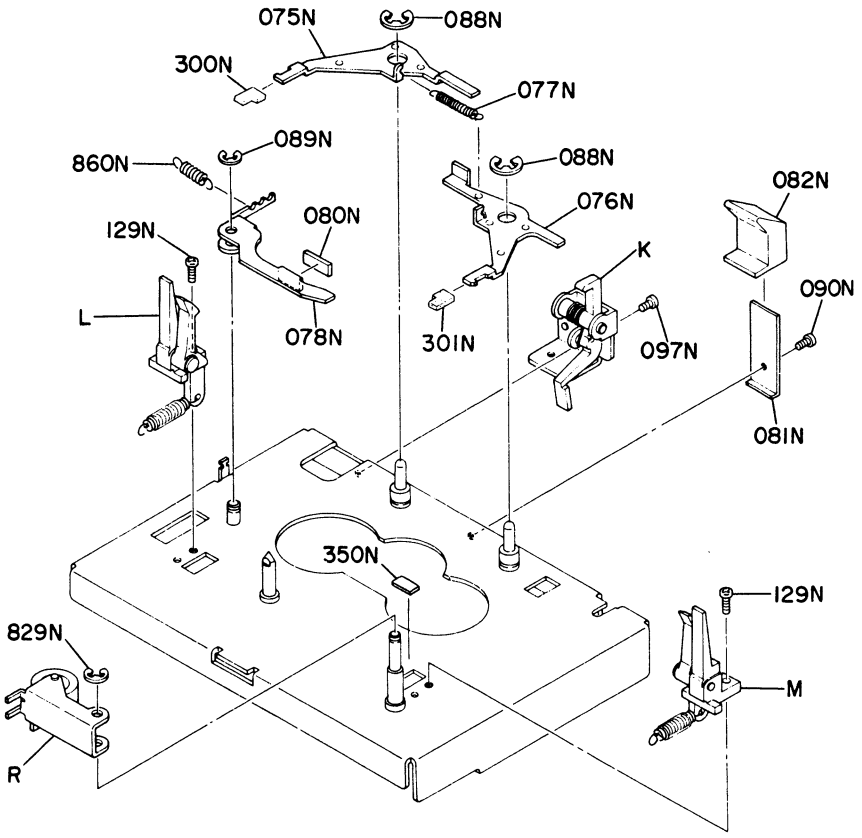


REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
265N	1	1	1	1	4397262030	Color
266N	1	1	1	1	4397273500	Flywheel
267N	1	1	1	1	59030802G9	Spacer
268N	3	3	3	3	51042604A0	F.H.M. Screw P2.6 x 4
269N	1	1	1	1	4397106020	Sustainer, Capstan
270N	1	1	1	1	4397104010	Retainer
271N	1	1	1	1	3483164020	Adjuster
272N	1	1	1	1	4397118010	Spacer
276N	2	2	2	2	51060305A9	P.H.M. Screw P3 x 5
850N	1	1	1	1	4397264010	Belt

[P06-99] HEAD CHASSLS



REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
F	1	1	1	1	4397105400	Chassis Assembly
Q	1	1	1	1	4397105410	Chassis Assembly, Head
100N	1	1	1	1	4397053010	Cover, Head Chassis
101N	1	1	1	1	51060206A0	P.H.M. Screw P2 x 6
120N	1	1	1	1	4397354500	Lever, (k) F/R
123N	1	1	1	1	4397002050	Arm, F/R
124N	1	1	1	1	4397115190	Spring
128N	1	1	1	1	64002500R0	RG Ring, E Type
815N	1	1	1	1	4380115090	Spring, Azimuth
816N	1	1	1	1	3444118070	Spacer
818N	1	1	1	1	4397115070	Spring
819N	1	1	1	1	4397115080	Spring (L)
820N	1	1	1	1	4397115090	Spring (R)
821N	1	1	1	1	4397115130	Spring
822N	1	1	1	1	64002500R0	RG Ring, E Type
823N	1	1	1	1	51060204A0	P.H.M. Screw P2 x 4
824N	1	1	1	1	4397254090	Pin
825N	2	2	2	2	51060206A0	P.H.M. Screw P2 x 6
826N	3	3	3	3	51062603A0	P.H.M. Screw P2.6 x 3
827N	6	6	6	6	6102501OT0	Ball
828N	1	1	1	1	4397115050	Spring
H001	1	1	1	1	LH42122010	Rec/Play Head
H002	1	1	1	1	LH31000510	Erase Head



- (U): for U.S.A.
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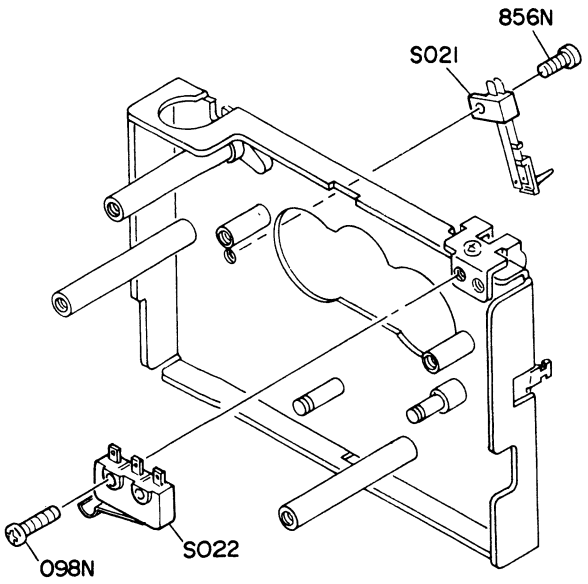
REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
K	1	1	1	1	4397104420	Retainer Assembly
L	1	1	1	1	4397104400	Retainer Assembly, Cassette
M	1	1	1	1	4397104410	Retainer Assembly, Cassette
R	1	1	1	1	4397354410	Lever Assembly, Pinch Roller
075N	1	1	1	1	4397354040	Brake Lever (L)
076N	1	1	1	1	4397354030	Brake Lever (R)
077N	1	1	1	1	4397115100	Spring
078N	1	1	1	1	4397354090	Lever, Back Tenssion
080N	1	1	1	1	4397061030	Clutch, Back Tenssion
081N	1	1	1	1	4397115020	Spring
082N	1	1	1	1	4397053020	Cover
088N	2	2	2	2	64000400R0	RG Ring, E Type
089N	1	1	1	1	64002500R0	RG Ring, E Type

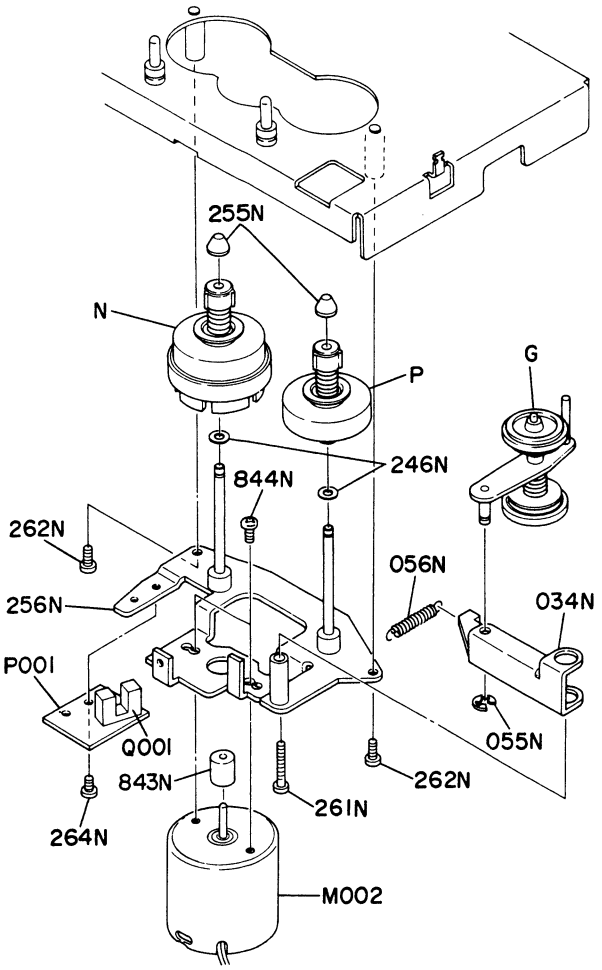
REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
090N	1	1	1	1	51062603A0	P.H.M. Screw P2.6 x 3
097N	1	1	1	1	51062604A0	P.H.M. Screw P2.6 x 4
300N	1	1	1	1	4367263010	Brake
301N	1	1	1	1	4367263010	Brake
350N	1	1	1	1	4397120010	Insulator
829N	1	1	1	1	64002500R0	RG Ring, E Type
860N	1	1	1	1	4397115210	Spring, Back Tension
129N	2	2	2	2	51062606A0	P.H.M. Screw P2.6 x 6

[P08-99] SWITCH LOCATION FOR TAPE OPERATION

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australia

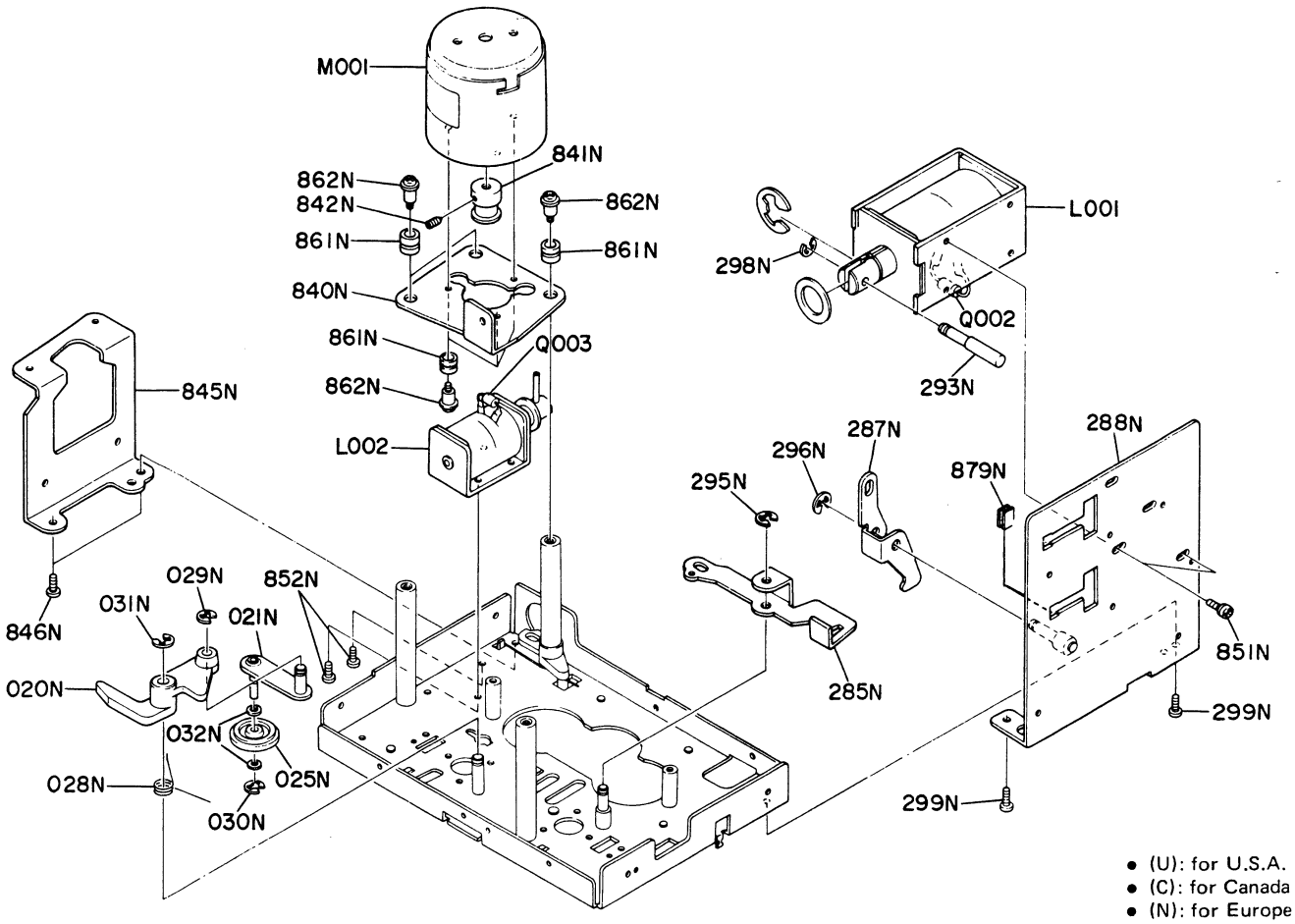


REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION	
098N	1	1	1	1	51060208A0	P.H.M. Screw	P2 x 8
856N	1	1	1	1	51062605A0	P.H.M. Screw	P2.6 x 5
S021	1	1	1	1	SM01010740	Mini Switch, Cassette	
S022	1	1	1	1	SC01020340	Micro Switch	



REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION	
G	1	1	1	1	4397002420	Arm Assembly, FF/REW	
N	1	1	1	1	4397004400	Table Assembly, Take up	
P	1	1	1	1	4397004410	Table Assembly, Supply	
034N	1	1	1	1	4397354150	Lever, F/R	
055N	1	1	1	1	64002500R0	RG Ring, E Type	
056N	1	1	1	1	4397115010	Spring	
246N	2	2	2	2	59020402G9	Washer	
255N	2	2	2	2	4367067010	Cap, Reel Table	
256N	1	1	1	1	4397160500	Bracket (k) Reel	
261N	1	1	1	1	51062620A0	P.H.M. Screw	P2.6 x 20
262N	2	2	2	2	51062606A0	P.H.M. Screw	P2.6 x 6
264N	1	1	1	1	51062604A0	P.H.M. Screw	P2.6 x 4
843N	1	1	1	1	4397262020	Pulley, Reel Motor	
844N	2	2	2	2	51062603A0	P.H.M. Screw	P2.6 x 3
⚠ M002	1	1	1	1	MM11200120	D.C. Motor, FF/REW	
Q001	1	1	1	1	HW10001030	Photo Unit	
P001	1	1	1	1	YF43970010	P.W. Board. Photo Coupler	
	1	1	1	1	ZZ43970010	P.W. Board Assembly	

[P09-99] PARTS ASSEMBLED ON TOP OF CHASSIS



- (U): for U.S.A.
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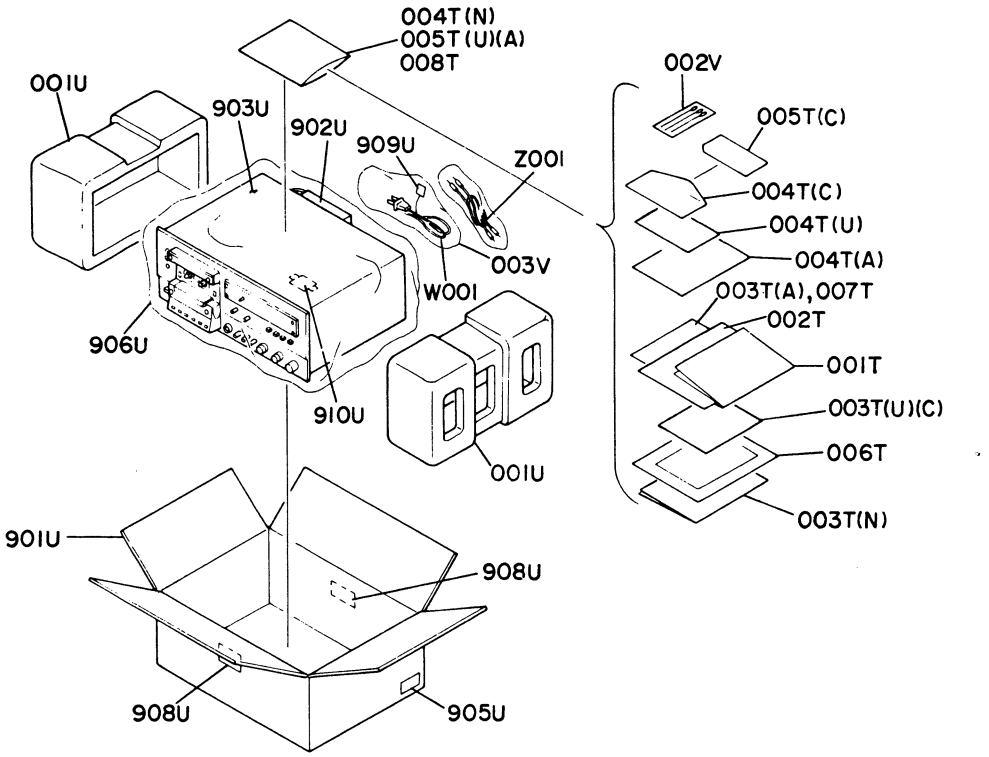
- (A): for Australi

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
020N	1	1	1	1	4397354080	Lever, Take up
021N	1	1	1	1	4397002500	Arm (K) Take up
025N	1	1	1	1	4367001510	Idler, Take up
028N	1	1	1	1	4397115150	Spring
029N	1	1	1	1	64000200R0	RG Ring, E Type
030N	1	1	1	1	64001200R0	RG Ring, E Type
031N	1	1	1	1	64002500R0	RG Ring, E Type
032N	2	2	2	2	59163202G9	Washer
285N	1	1	1	1	4397354070	Lever, Play
287N	1	1	1	1	4397354060	Lever, Solenoide
288N	1	1	1	1	4397160510	Bracket (K)
293N	1	1	1	1	4397254080	Pin
295N	1	1	1	1	64000300R0	RG Ring, E Type
296N	1	1	1	1	64000300R0	RG Ring, E Type
298N	1	1	1	1	64002500R0	RG Ring, E Type
299N	2	2	2	2	51100306A9	B.H.M. Screw B3 x 6

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
840N	1	1	1	1	4397160020	Bracket, Motor
841N	1	1	1	1	4397262010	Pulley
842N	1	1	1	1	51690305Q9	Socket Screw, HP 3 x 5
845N	1	1	1	1	4397160060	Bracket, Motor
846N	2	2	2	2	51060304A9	P.H.M. Screw P3 x 4
851N	2	2	2	2	51440306A9	L. Washer Screw L3 x 6
852N	2	2	2	2	51102604A0	B.H.M. Screw B2.6 x 4
861N	6	6	6	6	4383259010	Bushing
862N	6	6	6	6	4367112150	Shaft
879N	1	1	1	1	4103114030	Stopper
⚠ L001	1	1	1	1	ME10630010	Solenoid Coil, Play
⚠ L002	1	1	1	1	ME10410010	Solenoid Coil, Brake
⚠ M001	1	1	1	1	MM11205010	D.C. Motor, 12V 2 Speed
Q002	1	1	1	1	HD20023100	Diode 10E-1
Q003	1	1	1	1	HD20023100	Diode 10E-1

[H01-99] PACKING MATERIALS



- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
001T	1			1	4278851010	Instructions
001T		1	1		4278851310	Instructions
002T	1			1	4278851020	Instructions
002T		1			4278851220	Instructions
002T			1		4278851320	Instructions
003T	1				2818854020	Guarantee Card
003T		1			2818854040	Guarantee Card
003T			1		4278856010	Circuit Diagram
003T				1	2205851040	Instructions
004T	1				2225813010	Envelope
004T		1			2918813010	Envelope
004T			1		9013025010	Polyethy Bag
004T				1	9631000090	Guarantee Card
005T	1			1	9013025010	Polythy Bag
005T		1			9630000180	Guarantee Card
006T		1			9650000050	S. Station Card
007T		1			4292851220	Instructions
008T		1			9013025010	Polyethy Bag

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
001U	2	2	2	2	4279809010	Cushion
901U	1	1			4278801010	Packing Case
901U			1	1	4278801020	Packing Case
902U	1	1			2864804010	Sleeve
903U	1	1	1	1	2918107150	Sheet
905U	2				9526019010	Serial No. Card
905U		2			9526019020	Serial No. Card
905U			2	2	9526019030	Serial No. Card
906U	1	1	1	1	9090909040	Polyethy Sheet
908U		2			9510901020	Label, Address
909U			1	1	9560000040	Hang Tag
910U			1		2731821010	Silicagel
002V	1	1	1	1	4136071010	Cleaner
003V	1	1	1	1	9011325010	Polyethy Bag
⚠W001			1		ZC01805020	A.C. Power Cord
⚠W001				1	ZC02006030	A.C. Power Cord
Z001	?	2	2	2	ZD01000170	Connective Cord

- (U): for U.S.A.
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- (N): for Europe
- (A): for Austral

ELECTRICAL PARTS

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
						P001-PHOTO CAPLER CIRCUIT BOARD
P001	1	1	1	1	YF43970010	P.W. Board, Photo Capler
	1	1	1	1	ZZ43970010	P.W. Board Assembly
Q001	1	1	1	1	HW10001030	Photo Unit
						P100-PRE-AMP. CIRCUIT BOARD
P100	1	1	1	1	YG42780010	P.W. Board, Pre-Amp.
	1	1			ZZ42780010	P.W. Board Assembly
			1	1	ZZ52788010	P.W. Board Aseembly
						P100-CAPACITORS
C101	1	1	1	1	DF55221090	Film 220pF ±5%
C102	1	1	1	1	EA22602530	Elect 22μF 25V
C103	1	1	1	1	EE47502540	Elect 4.7μF 25V
C104	1	1	1	1	EA47601030	Elect 47μF 10V
C105	1	1	1	1	DD15470370	Ceramic 47pF ±5%
C106	1	1	1	1	EA47601030	Elect 47μF 10V
C107	1	1	1	1	DF15153300	Film 0.015μF ±5%
C108	1	1	1	1	EA22505030	Elect 2.2μF 50V
C109	1	1	1	1	EA33405030	Elect 0.33μF 50V
C110	1	1	1	1	DF15123300	Film 0.012μF ±5%
C111	1	1	1	1	DF15102300	Film 0.001μF ±5%
C112	1	1	1	1	DF15103300	Film 0.01μF ±5%
C113	1	1	1	1	EA33405030	Elect 0.33μF 50V
C114	1	1	1	1	EA10505030	Elect 1μF 50V
C115	1	1	1	1	EE10505040	Elect 1μF 50V
C116	1	1	1	1	EA10702530	Elect 100μF 25V
C117	1	1	1	1	DD15101350	Ceramic 100pF ±5%
C118	1	1	1	1	DF15152300	Film 0.0015μF ±5%
C119	1	1	1	1	EA10602530	Elect 10μF 25V
C120	1	1	1	1	EA10405030	Elect 0.1μF 50V
C121	1	1	1	1	EA33405030	Elect 0.33μF 50V
C122	1	1	1	1	DF15473300	Film 0.047μF ±5%
C123	1	1	1	1	EA10602530	Elect 10μF 25V
C124	1	1	1	1	DF15472300	Film 0.0047μF ±5%
C125	1	1	1	1	DF15273300	Film 0.027μF ±5%
C126	1	1	1	1	DF15562300	Film 0.0056μF ±5%
C127	1	1	1	1	EA10602530	Elect 10μF 25V
C128	1	1	1	1	EA10701030	Elect 100μF 10V
C129	1	1	1	1	EA10702530	Elect 100μF 25V
C130	1	1	1	1	DF15392300	Film 0.0039μF ±5%
C131	1	1	1	1	DF55681090	Film 680pF ±5%
C132	1	1	1	1	EA33405030	Elect 0.33μF 50V
C133	1	1	1	1	EA10602530	Elect 10μF 25V
C134	1	1	1	1	EA10602530	Elect 10μF 25V
C135	1	1	1	1	EA22505030	Elect 2.2μF 50V
C136	1	1	1	1	EA22505030	Elect 2.2μF 50V
C137	1	1	1	1	EA47405030	Elect 0.47μF 50V
C138	1	1	1	1	EA47602530	Elect 47μF 25V
C139	1	1	1	1	EA33602530	Elect 33μF 25V
C140	1	1	1	1	EA47505030	Elect 4.7μF 50V
C141	1	1	1	1	EA22405030	Elect 0.22μF 50V
C142	1	1	1	1	EA47505030	Elect 4.7μF 50V
C143	1	1	1	1	EA47505030	Elect 4.7μF 50V
C144	1	1	1	1	DF15152300	Film 0.0015μF ±5%
C145	1	1	1	1	DF55101090	Film 100pF ±5%
C146	1	1	1	1	DF15103300	Film 0.01μF ±5%
C147	1	1	1	1	DF15153300	Film 0.015μF ±5%
C148	1	1	1	1	DF15223300	Film 0.022μF ±5%
C149	1	1	1	1	DF15183300	Film 0.018μF ±5%
C150	1	1	1	1	DF15223300	Film 0.022μF ±5%
C151	1	1	1	1	DF15183300	Film 0.018μF ±5%
C152	1	1	1	1	DK18102300	Film 0.001μF ±5%
C153	1	1	1	1	DK18102300	Film 0.001μF ±5%
C154	1	1	1	1	DF15103300	Film 0.01μF ±5%
C155	1	1	1	1	DF15103300	Film 0.01μF ±5%
C156	1	1	1	1	DF15103300	Film 0.01μF ±5%
C157	1	1	1	1	DF15822300	Film 0.0082μF ±5%
C158	1	1	1	1	DF15473300	Film 0.047μF ±5%
C159	1	1	1	1	DF15393300	Film 0.039μF ±5%
C160	1	1	1	1	EA10702530	Elect 100μF ±25V
C162	1	1	1	1	DD15560330	Ceramic 56pF ±5%
C163	1	1	1	1	DF15182300	Film 0.0018μF ±5%
C170	1	1	1	1	EA47405030	Elect 0.47μF 50V
C171	1	1	1	1	DF65242010	Film 2400pF ±5%
C172	1	1	1	1	EA10602530	Elect 10μF 25V
C173	1	1	1	1	DD15160300	Ceramic 16pF ±5%
C201	1	1	1	1	DF55221090	Film 220pF ±5%
C202	1	1	1	1	EA22602530	Elect 22μF 25V
C203	1	1	1	1	EE47502540	Elect 4.7μF 25V
C204	1	1	1	1	EA47601030	Elect 47μF 10V
C205	1	1	1	1	DD15470370	Ceramic 47pF ±5%
C206	1	1	1	1	EA47601030	Elect 47μF 10V
C207	1	1	1	1	DF15153300	Film 0.015μF ±5%
C208	1	1	1	1	EA22505030	Elect 2.2μF 50V
C209	1	1	1	1	EA33405030	Elect 0.33μF 50V
C210	1	1	1	1	DF15123300	Film 0.012μF ±5%
C211	1	1	1	1	DF15102300	Film 0.001μF ±5%
C212	1	1	1	1	DF15103300	Film 0.01μF ±5%
C213	1	1	1	1	EA33405030	Elect 0.33μF 50V
C214	1	1	1	1	EA10505030	Elect 1μF 50V
C215	1	1	1	1	EE10505040	Elect 1μF 50V
C216	1	1	1	1	EA10702530	Elect 100μF 25V
C217	1	1	1	1	DD15101350	Ceramic 100pF ±5%
C218	1	1	1	1	DF15152300	Film 0.0015μF ±5%
C219	1	1	1	1	EA10602530	Elect 10μF 25V
C220	1	1	1	1	EA10405030	Elect 0.1μF 50V
C221	1	1	1	1	EA33405030	Elect 0.33μF 50V
C222	1	1	1	1	DF15473300	Film 0.047μF ±5%
C223	1	1	1	1	EA10602530	Elect 10μF 25V
C224	1	1	1	1	DF15472300	Film 0.0047μF ±5%
C225	1	1	1	1	DF15273300	Film 0.027μF ±5%
C226	1	1	1	1	DF15562300	Film 0.0056μF ±5%
C227	1	1	1	1	EA10602530	Elect 10μF 25V
C228	1	1	1	1	EA10701030	Elect 100μF 10V
C229	1	1	1	1	EA10702530	Elect 100μF 25V
C230	1	1	1	1	DF15392300	Film 0.0039μF ±5%
C231	1	1	1	1	DF55681090	Film 680pF ±5%
C232	1	1	1	1	EA33405030	Elect 0.33μF 50V
C233	1	1	1	1	EA10602530	Elect 10μF 25V
C234	1	1	1	1	EA10602530	Elect 10μF 25V
C235	1	1	1	1	EA22505030	Elect 2.2μF 50V

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
C236	1	1	1	1	EA22505030	Elect 2.2μF 50V
C237	1	1	1	1	EA47405030	Elect 0.47μF 50V
C238	1	1	1	1	EA47602530	Elect 47μF 25V
C239	1	1	1	1	EA33602530	Elect 33μF 25V
C240	1	1	1	1	EA47505030	Elect 4.7μF 50V
C241	1	1	1	1	EA22405030	Elect 0.22μF 50V
C242	1	1	1	1	EA47505030	Elect 4.7μF 50V
C243	1	1	1	1	EA47505030	Elect 4.7μF 50V
C244	1	1	1	1	DF15152300	Film 0.0015μF ±5%
C245	1	1	1	1	DF55101090	Film 100pF ±5%
C246	1	1	1	1	DF15103300	Film 0.01μF ±5%
C247	1	1	1	1	DF15153300	Film 0.015μF ±5%
C248	1	1	1	1	DF15223300	Film 0.022μF ±5%
C249	1	1	1	1	DF15183300	Film 0.018μF ±5%
C250	1	1	1	1	DF15223300	Film 0.022μF ±5%
C251	1	1	1	1	DF15183300	Film 0.018μF ±5%
C252	1	1	1	1	DK18102300	Film 0.047μF ±5%
C253	1	1	1	1	DK18102300	Film 0.001μF ±5%
C254	1	1	1	1	DF15103300	Film 0.01μF ±5%
C255	1	1	1	1	DF15103300	Film 0.01μF ±5%
C256	1	1	1	1	DF15103300	Film 0.01μF ±5%
C257	1	1	1	1	DF15822300	Film 0.0082μF ±5%
C258	1	1	1	1	DF15473300	Film 0.047μF ±5%
C259	1	1	1	1	DF15393300	Film 0.033μF ±5%
C260	1	1	1	1	EA10702530	Elect 100μF 25V
C262	1	1	1	1	DD15560330	Ceramic 56pF ±5%
C270	1	1	1	1	EA47405030	Elect 0.47μF 50V
C271	1	1	1	1	DF65242010	Film 2400pF ±5%
C272	1	1	1	1	EA10602530	Elect 10μF 25V
C273	1	1	1	1	DD15160300	Ceramic 16pF ±5%
C301	1	1	1	1	EA22702530	Elect 220μF 25V
C302	1	1	1	1	EA10701030	Elect 100μF 10V
C303	1	1	1	1	DK18104010	Ceramic 0.1μF
C304	1	1	1	1	DK18104010	Ceramic 0.1μF
C263	1	1	1	1	DF15182300	Film 0.0018μF ±5%
						P100-RESISTORS
						(All Resistors are ±5% & ¼W)
R101	1	1	1	1	GD05100140	10Ω
R102	1	1	1	1	GD05822140	8.2KΩ
R103	1	1	1	1	GD05224140	220KΩ
R104	1	1	1	1	GD05683140	68KΩ
R105	1	1	1	1	GD05104140	100KΩ
R106	1	1	1	1	GD05223140	22KΩ
R107	1	1	1	1	GD05271140	270Ω
R108	1	1	1	1	GD05333140	33KΩ
R109	1	1	1	1	GD05103140	10KΩ
R110	1	1	1	1	GD05101140	100Ω
R112			1	1	GD05562140	5.6KΩ
R111	1	1	1	1	GD05152140	1.5KΩ
R113	1	1	1	1	GD05273140	27KΩ
R114	1	1	1	1	GD05394140	390KΩ
R115	1	1	1	1	RA05020160	5KΩTrimming, P.B EQ
R116	1	1	1	1	GD05682140	6.8KΩ
R117	1	1	1	1	GD05822140	8.2KΩ
R118	1	1	1	1	GD05822140	8.2KΩ
R119	1	1	1	1	GD05332140	3.3KΩ
R120	1	1	1	1	GD05822140	8.2KΩ
R121	1	1	1	1	GD05682140	6.8KΩ
R122	1	1	1	1	GD05102140	1KΩ
R123	1	1	1	1	RA05030090	50KΩTrimming, P.B Level
R124	1	1	1	1	GD05105140	1MΩ
R125	1	1	1	1	GD05392140	3.9KΩ
R126	1	1	1	1	GD05222140	2.2KΩ

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
R127	1	1	1	1	GD05473140	47KΩ
R128	1	1	1	1	GD05154140	150KΩ
R129	1	1	1	1	GD05274140	270KΩ
R130	1	1	1	1	GD05473140	47KΩ
R131	1	1	1	1	GD05181140	180Ω
R132	1	1	1	1	GD05332140	3.3KΩ
R133	1	1	1	1	GD05104140	100KΩ
R134	1	1	1	1	GD05822140	8.2KΩ
R135	1	1	1	1	GA05561010	560Ω 1W
R136	1	1	1	1	GG05391140	390Ω
R137	1	1	1	1	GD05105140	1MΩ
R138	1	1	1	1	GD05182140	1.8KΩ
R139	1	1	1	1	GD05102140	1KΩ
R140	1	1	1	1	GD05102140	1KΩ
R141	1	1	1	1	GD05561140	560Ω
R142	1	1	1	1	GD05102140	1KΩ
R143	1	1	1	1	GD05333140	33KΩ
R144	1	1	1	1	GD05104140	100KΩ
R145	1	1	1	1	GA05681010	680Ω 1W
R146	1	1	1	1	GD05151140	150Ω
R147	1	1	1	1	GD05102140	1KΩ
R148	1	1	1	1	GD05183140	18 KΩ
R150	1	1	1	1	GD05822140	8.2 KΩ
R151	1	1	1	1	GD05272140	2.7 KΩ
R152	1	1	1	1	GD05682140	6.8 KΩ
R153	1	1	1	1	GD05472140	4.7 KΩ
R154	1	1	1	1	RA02030060	20KΩTrimming, Rec Level
R155	1	1	1	1	RA02030060	20KΩTrimming, Rec Level
R156	1	1	1	1	GD05561140	560Ω
R157	1	1	1	1	GD05103140	10KΩ
R158	1	1	1	1	GD05103140	10KΩ
R159	1	1	1	1	GD05473140	47KΩ
R160	1	1	1	1	GD05564140	560KΩ
R161	1	1	1	1	GD05153140	15KΩ
R162	1	1	1	1	GD05102140	1KΩ
R163	1	1	1	1	GD05103140	10KΩ
R164	1	1	1	1	GD05182140	1.8KΩ
R165	1	1	1	1	GD05152140	1.5KΩ
R166	1	1	1	1	GD05680140	68Ω
R167	1	1	1	1	GD05680140	68Ω
R168	1	1	1	1	GD05121140	120Ω
R169	1	1	1	1	GD05121140	120Ω
R170	1	1	1	1	GD05822140	8.2KΩ
R171	1	1	1	1	GD05822140	8.2KΩ
R172	1	1	1	1	GD05392140	3.9KΩ
R173	1	1	1	1	GD05822140	8.2KΩ
R174	1	1	1	1	GD05182140	1.8kΩ
R175	1	1	1	1	GD05221140	220Ω
R176	1	1	1	1	GD05181140	180Ω
R177	1	1	1	1	GD05121140	120Ω

- (U): for U.S.A.
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REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
R178	1	1	1	1	GD05151140	150Ω
R179	1	1	1	1	GD05822140	8.2KΩ
R180	1	1	1	1	GD05333140	33KΩ
R181			1	1	GD05102140	1KΩ
R183	1	1	1	1	GD05582140	5.8KΩ
R184	1	1	1	1	GD05821140	820Ω
R190	1	1	1	1	GD05105140	1MΩ
R191	1	1	1	1	GD05244140	240KΩ
R192	1	1	1	1	GD05332140	3.3KΩ
R193	1	1	1	1	GD05332140	3.3KΩ
R194	1	1	1	1	RA01030260	10KΩTrimming
R195	1	1	1	1	GD05824140	820KΩ
R196	1	1	1	1	GD05102140	1KΩ
R201	1	1	1	1	GD05100140	10Ω
R202	1	1	1	1	GD05822140	8.2KΩ
R203	1	1	1	1	GD05224140	220KΩ
R204	1	1	1	1	GD05683140	68KΩ
R205	1	1	1	1	GD05104140	100KΩ
R206	1	1	1	1	GD05223140	22KΩ
R207	1	1	1	1	GD05271140	270Ω
R212			1	1	GD05392140	3.9KΩ
R208	1	1	1	1	GD05333140	33KΩ
R209	1	1	1	1	GD05103140	10KΩ
R210	1	1	1	1	GD05101140	100Ω
R211	1	1	1	1	GD05152140	1.5KΩ
R212			1	1	GD05562140	5.6kΩ
R213	1	1	1	1	GD05273140	27KΩ
R214	1	1	1	1	GD05394140	390KΩ
R215	1	1	1	1	RA05020160	5KΩTrimming, P.B EQ
R216	1	1	1	1	GD05682140	6.8KΩ
R217	1	1	1	1	GD05822140	8.2KΩ
R218	1	1	1	1	GD05822140	8.2KΩ
R219	1	1	1	1	GD05332140	3.3KΩ
R220	1	1	1	1	GD05822140	8.2KΩ
R221	1	1	1	1	GD05682140	6.8KΩ
R222	1	1	1	1	GD05102140	1KΩ
R223	1	1	1	1	RA05030090	50KΩTrimming, P.B Level
R224	1	1	1	1	GD05105140	1MΩ
R225	1	1	1	1	GD05392140	3.9KΩ
R226	1	1	1	1	GD05222140	2.2KΩ
R227	1	1	1	1	GD05473140	47KΩ
R228	1	1	1	1	GD05154140	150KΩ
R229	1	1	1	1	GD05274140	270KΩ
R230	1	1	1	1	GD05473140	47KΩ
R231	1	1	1	1	GD05181140	180Ω
R232	1	1	1	1	GD05332140	3.3KΩ
R233	1	1	1	1	GD05104140	100KΩ
R234	1	1	1	1	GD05822140	8.2KΩ
⚠R235	1	1	1	1	GA05561010	560Ω 1W
⚠R236	1	1	1	1	GG05391140	390Ω
R237	1	1	1	1	GD05105140	1MΩ
R238	1	1	1	1	GD05182140	1.8KΩ
R239	1	1	1	1	GD05102140	1KΩ
R240	1	1	1	1	GD05102140	1KΩ
R241	1	1	1	1	GD05561140	560Ω
R242	1	1	1	1	GD05102140	1KΩ
R243	1	1	1	1	GD05333140	33KΩ
R244	1	1	1	1	GD05104140	100KΩ
R245	1	1	1	1	GA05681010	680Ω 1W
R246	1	1	1	1	GD05151140	150Ω
R247	1	1	1	1	GD05102140	1KΩ
R248	1	1	1	1	GD05183140	18KΩ

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
R250	1	1	1	1	GD05822140	8.2KΩ
R251	1	1	1	1	GD05272140	2.7 KΩ
R252	1	1	1	1	GD05682140	6.8 KΩ
R253	1	1	1	1	GD05472140	4.7 KΩ
R254	1	1	1	1	RA02030060	20KΩTrimming, Rec Leve
R255	1	1	1	1	RA02030060	20KΩTrimming, Rec Leve
R256	1	1	1	1	GD05561140	560Ω
R257	1	1	1	1	GD05103140	10KΩ
R258	1	1	1	1	GD05103140	10KΩ
R259	1	1	1	1	GD05473140	47KΩ
R260	1	1	1	1	GD05564140	560KΩ
R261	1	1	1	1	GD05153140	15KΩ
R262	1	1	1	1	GD05102140	1KΩ
R263	1	1	1	1	GD05103140	10KΩ
R264	1	1	1	1	GD05182140	1.8KΩ
R265	1	1	1	1	GD05152140	1.5KΩ
R266	1	1	1	1	GD05680140	68Ω
R267	1	1	1	1	GD05680140	68Ω
R268	1	1	1	1	GD05121140	120Ω
R269	1	1	1	1	GD05121140	120Ω
R270	1	1	1	1	GD05822140	8.2KΩ
R271	1	1	1	1	GD05822140	8.2KΩ
R272	1	1	1	1	GD53922140	3.9KΩ
R273	1	1	1	1	GD05822140	8.2KΩ
R274	1	1	1	1	GD05182140	1.8KΩ
R275	1	1	1	1	GD05221140	220Ω
R276	1	1	1	1	GD05181140	180Ω
R277	1	1	1	1	GD05121140	120Ω
R278	1	1	1	1	GD05151140	150Ω
R279	1	1	1	1	GD05822140	8.2KΩ
R280	1	1	1	1	GD05333140	33KΩ
R281			1	1	GD05102140	1KΩ
R283	1	1	1	1	GD05582140	5.8Ω
R284	1	1	1	1	GD05820140	820Ω
R290	1	1	1	1	GD05105140	1MΩ
R291	1	1	1	1	GD05244140	240KΩ
R292	1	1	1	1	GD05332140	3.3KΩ
R293	1	1	1	1	GD05332140	3.3KΩ
R294	1	1	1	1	RA01030260	10KΩTrimming
R295	1	1	1	1	GD05824140	820KΩ
R296	1	1	1	1	GD05102140	1KΩ
R301	1	1	1	1	GD05823140	82KΩ
R302	1	1	1	1	GA05182010	1.8KΩ 1W
R303	1	1	1	1	GD05271140	270Ω
R304	1	1	1	1	GD05472140	4.7KΩ
R305	1	1	1	1	GD05332140	3.3KΩ
R306	1	1	1	1	GA05100010	10Ω 1W
R307	1	1	1	1	GD05183140	18KΩ
R308	1	1	1	1	RK02020070	2KΩVariable, Bias Fine
R309	1	1	1	1	GD05562140	5.6KΩ
R310	1	1	1	1	GD05222140	2.2KΩ
R311	1	1	1	1	GD05393140	39KΩ
R312	1	1	1	1	RA03020030	3KΩTrimming, Bias Adj.
R313	1	1	1	1	RA05020160	5KΩTrimming, Bias Adj.
R314	1	1	1	1	RA02030060	20KΩTrimming, Bias Adj.

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REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
R315	1	1	1	1	GD05101140	100Ω
R316	1	1	1	1	GD05154140	150KΩ
R317	1	1	1	1	GA05102010	1KΩ 1W
R318	1	1	1	1	GD05822140	8.2KΩ
R319	1	1	1	1	GD05331140	330Ω
R320	1	1	1	1	GD05152140	1.5KΩ
R321	1	1	1	1	RA01020110	1KΩ Trimming, Hi-Speed
R322	1	1	1	1	GA05151010	150Ω 1W
R325	1	1	1	1	GA05470010	47Ω 1W
R327	1	1	1	1	GD05332140	3.3KΩ
R328	1	1	1	1	GD05391140	390Ω
						P100-SEMICONDUCTORS
Q101	1	1	1	1	HT111271T0	Transistor 2SA1127(T)
Q102	1	1	1	1	HT326341T0	Transistor 2SC2634(T)
Q103	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q104	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q105	1	1	1	1	HT314001E0	Transistor 2SC1400(E)
Q106	1	1	1	1	HC10001360	IC LM1011AN
Q107	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q108	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q109	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q110	1	1	1	1	HT326341T0	Transistor 2SC2634(T)
Q111	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q112	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q113	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q114	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q115	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q116	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q117	1	1	1	1	HD20011050	Diode 1S1555
Q125	1	1	1	1	HT326341T0	Transistor 2SC2634(T)
Q126	1	1	1	1	HF200301E0	F.E.T. 2SK30A(D)
Q201	1	1	1	1	HT111271T0	Transistor 2SA1127(T)
Q202	1	1	1	1	HT326341T0	Transistor 2SC2634(T)
Q203	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q204	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q205	1	1	1	1	HT314001E0	Transistor 2SC1400(E)
Q206	1	1	1	1	HC10001360	IC LM1011AN
Q207	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q208	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q209	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q210	1	1	1	1	HT326341T0	Transistor 2SC2634(T)
Q211	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q212	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q213	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q214	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q215	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q216	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q217	1	1	1	1	HD20011050	Diode 1S1555
Q225	1	1	1	1	HT326341T0	Transistor 2SC2634(T)
Q226	1	1	1	1	HF200301E0	F.E.T. 2SK30A(D)
Q301	1	1	1	1	HD20011050	Diode 1S1555
Q302	1	1	1	1	HT309451P0	Transistor 2SC945(P)
Q118	1	1	1	1	HD30024090	Zener WZ120
Q218	1	1	1	1	HD30024090	Zener WZ120

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
Q303	1	1	1	1	HT403131E0	Transistor 2SD313(E)
Q304	1	1	1	1	HD20011050	Diode 1S1555
Q305	1	1	1	1	HD30033090	Zener WZ052
Q306	1	1	1	1	HD20011050	Diode 1S1555
Q307	1	1	1	1	HT326341T0	Transistor 2SC2634(T)
Q309	1	1	1	1	HT309451P0	Transistor 2SC945(P)
						P100-MISCELLANEOUS
L101	1	1	1	1	LC22260050	Choke Coil 22mH, Bias Trap
L102	1	1	1	1	LS70305010	M.P.X. Coil 22mH, 19KHz
L103	1	1	1	1	LC22260070	Choke Coil 22mH, Bias Trap
L104	1	1	1	1	LC24750030	Choke Coil 4.7mH, Rec EQ
L105	1	1	1	1	LC24750030	Choke Coil 4.7mH, Rec EQ
L201	1	1	1	1	LC22260050	Choke Coil 22mH, Bias Trap
L202	1	1	1	1	LS70305010	M.P.X. Coil 22mH, 19KHz
L203	1	1	1	1	LC22260070	Choke Coil 22mH, Bias Trap
L204	1	1	1	1	LC24750030	Choke Coil 4.7mH, Rec EQ
L205	1	1	1	1	LC24750030	Choke Coil 4.7mH, Rec EQ
S101	1	1	1	1	SS09020120	Slid Switch, Rec/Play (L)
S103	1	1	1	1	SR12020020	Rotary Switch, Speed
S104	1	1	1	1	SP10040030	Push Switch, Normal
S105	1	1	1	1	SP10040030	Push Switch, CrO_2
S106	1	1	1	1	SP10040030	Push Switch, Fe-Cr
S107	1	1	1	1	SP10040030	Push Switch, Metal
S108	1	1	1	1	SS04030130	Slid Switch, Dolby/MPX
S109	1	1	1	1	SB11910010	Switch Band, FLX
S110	1	1	1	1	SC00030030	Switch, 3 Position
S201	1	1	1	1	SS09020120	Slid Switch, Rec/Play (R)
J101	1	1			YT02040260	Terminal, 4P RCA
J101			1	1	YT02050020	Terminal, 4P RCA/Din
						P350-MIC/LINE VOL. CIRCUIT BOARD
P350	1	1	1	1	YK42781520	P.W. Board, Mic/Line Vol.
	1	1	1	1	ZZ42781520	P.W. Board Assembly
						P350-RESISTORS
R391	1	1	1	1	RD05030110	50KΩ(A) Variable, Mic
R392	1	1	1	1	RD05030110	50KΩ(A) Variable, Mic
R393	1	1	1	1	RD01040100	100KΩ(A) Variable, Line
R394	1	1	1	1	RD01040100	100KΩ(A) Variable, Line
R395	1	1	1	1	GD05223140	22KΩ ±5% ¼W
R396	1	1	1	1	GD05223140	22KΩ ±5% ¼W
						P351-OUTPUT VOLUME CIRCUIT BOARD
P351	1	1	1	1	YK42781530	P.W. Board, Output Volume
	1	1	1	1	ZZ42781530	P.W. Board Assembly
						P351-RESISTORS
R397	1	1	1	1	RM05030830	50KΩ(A) Variable, Output
R398	1	1	1	1	RM05030830	50KΩ(A) Variable, Output

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Austra

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
						P400-POWER SUPPLY CIRCUIT BOARD
P400	1	1	1	1	YF42790040	P.W. Board, Power Supply
	1	1	1	1	ZZ42780040	P.W. Board Assembly
						P400-CAPACITORS
C401	1	1	1	1	DK18102300	Ceramic 0.001μF
C402	1	1	1	1	DK18102300	Ceramic 0.001μF
C403	1	1	1	1	DK18102300	Ceramic 0.001μF
C404	1	1	1	1	DK18102300	Ceramic 0.001μF
⚠ C405	1	1	1	1	EA10803530	Elect 1000μF 35V
⚠ C406	1	1	1	1	EA10803530	Elect 1000μF 35V
⚠ C407	1	1	1	1	EA47702530	Elect 470pF 25V
⚠ C408	1	1	1	1	EA22702530	Elect 220μF 25V
C409	1	1	1	1	DK18102300	Ceramic 0.001μF
C410	1	1	1	1	DK18102300	Ceramic 0.001μF
C411	1	1	1	1	DK18102300	Ceramic 0.001μF
C412	1	1	1	1	DK18102300	Ceramic 0.001μF
⚠ C413	1	1	1	1	EA22803530	Elect 2200μF 35V
⚠ C414	1	1	1	1	EA22803530	Elect 2200μF 35V
C415	1	1	1	1	DF75103510	Film 0.01μF ±5%
C416	1	1	1	1	DF75103510	Film 0.01μF ±5%
C417	1	1	1	1	DF75332510	Film 0.0033μF ±5%
C418	1	1	1	1	DF75332510	Film 0.0033μF ±5%
C419	1	1	1	1	DF75472520	Film 0.0047μF ±5%
C420	1	1	1	1	EA22505030	Elect 2.2μF 50V
C421	1	1	1	1	DF75102510	Film 0.001μF ±5%
C422	1	1	1	1	DF55391510	Film 390pF ±5%
C423	1	1	1	1	DF55391510	Film 390pF ±5%
⚠ C424	1	1	1	1	EA22802530	Elect 2200μF 25V
⚠ C425	1	1	1	1	DK18473310	Ceramic 0.047μF
⚠ C426	1	1	1	1	EA47701630	Elect 470μF 16V
C429	1	1	1	1	DF75153510	Film 0.015μF ±5%
C430	1	1	1	1	DF75153510	Film 0.015μF ±5%
C431	1	1	1	1	DF75473510	Film 0.047μF ±5%
C432	1	1	1	1	EA10701630	Elect 100μF 16V
C433	1	1	1	1	DF75183510	Film 0.018μF ±5%
⚠ C439	1	1	1	1	EA22703530	Elect 220μF 35V
⚠ C440	1	1	1	1	EA10701630	Elect 100μF 16V
C448	1	1	1	1	EA10505030	Elect 1μF 50V
						P400-RESISTORS (All Resistors are ±5% & ¼W)
⚠ R401	1	1	1	1	GA05056010	5.6Ω 1W
⚠ R402	1	1	1	1	GA05471010	470Ω 1W
⚠ R403	1	1	1	1	GA05391010	390Ω 1W
R404	1	1	1	1	GD05223140	22KΩ
R405	1	1	1	1	GD05223140	22KΩ
R406	1	1	1	1	GD05100140	10Ω
R407	1	1	1	1	GD05100140	10Ω
R408	1	1	1	1	GJ05103010	10KΩ 1W
R409	1	1	1	1	GJ05103010	10KΩ 1W
R410	1	1	1	1	RA04730090	47KΩ Trimming, Bias
R411	1	1	1	1	RA04730090	47KΩ Trimming, Bias
R415	1	1	1	1	GD05153140	15KΩ
R416	1	1	1	1	GD05120140	12Ω
R426	1	1	1	1	GD05104140	100KΩ
R427	1	1	1	1	GD05101140	100Ω
R428	1	1	1	1	GA05102010	1KΩ 1W
R429	1	1	1	1	GA05102010	1KΩ 1W
⚠ R435	1	1	1	1	GA05182010	1.8KΩ 1W

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
						P400-SEMICONDUCTORS
⚠ Q401	1	1	1	1	HD20020080	Diode MI-151R
⚠ Q402	1	1	1	1	HD20019080	Diode MI-151
⚠ Q403	1	1	1	1	HT403131F0	Transistor 2SD313(F)
Q404	1	1	1	1	HD30048090	Zener WZ-210
⚠ Q405	1	1	1	1	HD20008290	Diode S4VB, RED
Q409	1	1	1	1	HT313841R0	Transistor 2SC1384(R)
Q410	1	1	1	1	HT313841R0	Transistor 2SC1384(R)
⚠ Q411	1	1	1	1	HD20020080	Diode MI-151R
⚠ Q412	1	1	1	1	HD20019080	Diode MI-151
⚠ Q413	1	1	1	1	HD20020080	Diode MI-151R
⚠ Q414	1	1	1	1	HD20019080	Diode MI-151
Q417	1	1	1	1	HT313841R0	Transistor 2SC1384(R)
Q425	1	1	1	1	HD20023100	Diode 10E-1 LF
Q426	1	1	1	1	HD30029090	Zener WZ090
⚠ Q427	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q428	1	1	1	1	HD20011050	Diode 1S1555
Q429	1	1	1	1	HD20011050	Diode 1S1555
⚠ Q432	1	1	1	1	HT403131E0	Transistor 2SD313(E)
						P400-MISCELLANEOUS
L401	1	1	1	1	LC12750020	Choke Coil 2.7μH
L402	1	1	1	1	LC12750020	Choke Coil 2.7μH
T401	1	1	1	1	TC10140110	OSC Transformer Bias
T402	1	1	1	1	TC10140130	OSC Transformer Erase 65KHz
						P500-LOGIC CONTROL CIRCUIT BOARD
P500	1	1	1	1	YK42781510	P.W. Board, Logic Control
	1	1	1	1	ZZ42781510	P.W. Board Assembly
						P500-CAPACITORS
C501	1	1	1	1	EA10602530	Elect 10μF 25V
C502	1	1	1	1	EA10602530	Elect 10μF 25V
C503	1	1	1	1	DF15102350	Film 1000pF ±5%
C504	1	1	1	1	DF15102350	Film 1000pF ±5%
C505	1	1	1	1	EA10701630	Elect 100μF 16V
C506	1	1	1	1	EA10602530	Elect 10μF 25V
C507	1	1	1	1	EA10602530	Elect 10μF 25V
C508	1	1	1	1	EA33505030	Elect 3.3μF 50V
C509	1	1	1	1	EA33505030	Elect 3.3μF 50V
C510	1	1	1	1	EA33505030	Elect 3.3μF 50V
C511	1	1	1	1	EA33602530	Elect 33μF 25V
C512	1	1	1	1	EA10602530	Elect 10μF 25V
C514	1	1	1	1	EA10505030	Elect 1μF 50V
C515	1	1	1	1	EA22505030	Elect 2.2μF 50V
C516	1	1	1	1	EA10602530	Elect 10μF 25V
C517	1	1	1	1	EA10602530	Elect 10μF 25V
C518	1	1	1	1	EA10602530	Elect 10μF 25V
C519	1	1	1	1	EA47701030	Elect 470μF 10V
C520	1	1	1	1	EA47701030	Elect 470μF 10V
C521	1	1	1	1	EA47601030	Elect 47μF 10V
C523	1	1	1	1	EA10702530	Elect 100μF 25V
C524	1	1	1	1	EA33602530	Elect 33μF 25V
C525	1	1	1	1	EA47601030	Elect 47μF 10V
C526	1	1	1	1	EA22405030	Elect 0.22μF 50V
C527 ~ C533	7	7	7	7	DK18103320	Ceramic 0.01μF 50V
C534	1	1	1	1	EE22405040	Elect 0.22μF 50V
C535	1	1	1	1	DK18104010	Ceramic 0.1μF 50V
C536	1	1	1	1	DK18103320	Ceramic 0.01μF 50V
C537	1	1	1	1	EA10602530	Elect 10μF 25V

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
						P500-RESISTORS
						(All Resistors are ±5% & ¼W)
R501	1	1	1	1	GD05102140	1KΩ
R502	1	1	1	1	GD05102140	1KΩ
R503	1	1	1	1	GD05223140	22KΩ
R504	1	1	1	1	GD05223140	22KΩ
R505	1	1	1	1	GD05472140	4.7KΩ
R506	1	1	1	1	GD05331140	330Ω
R507	1	1	1	1	GD05472140	4.7KΩ
R508	1	1	1	1	GD05472140	4.7KΩ
R509	1	1	1	1	GD05823140	82KΩ
R510	1	1	1	1	GD05123140	12KΩ
R511	1	1	1	1	GD05123140	12KΩ
R512	1	1	1	1	GD05103140	10KΩ
R513	1	1	1	1	GD05122140	1.2KΩ
R514	1	1	1	1	GD05472140	4.7KΩ
R515	1	1	1	1	GD05472140	4.7KΩ
R516	1	1	1	1	GD05182140	1.8KΩ
R517	1	1	1	1	GD05103140	10KΩ
R518	1	1	1	1	GD05472140	4.7KΩ
R519	1	1	1	1	GD05472140	4.7KΩ
R520	1	1	1	1	GD05104140	100KΩ
R521	1	1	1	1	GD05152140	1.5KΩ
R522	1	1	1	1	GD05332140	3.3KΩ
R523	1	1	1	1	GD05562140	5.6KΩ
R524	1	1	1	1	GD05331140	330Ω
R525	1	1	1	1	GD05222140	2.2KΩ
R526	1	1	1	1	RA01030260	10KΩTrimming
R527	1	1	1	1	GD05182140	1.8KΩ
R528	1	1	1	1	GD05182140	1.8KΩ
R529	1	1	1	1	GD05472140	4.7KΩ
R530	1	1	1	1	GD05122140	1.2KΩ
R531	1	1	1	1	GD05472140	4.7KΩ
R532	1	1	1	1	GD05122140	1.2KΩ
R533	1	1	1	1	GD05473140	47KΩ
R534	1	1	1	1	GD05472140	4.7KΩ
R535	1	1	1	1	GD05102140	1KΩ
R536	1	1	1	1	GD05102140	1KΩ
R537	1	1	1	1	GD05473140	47KΩ
R538	1	1	1	1	GD05472140	4.7KΩ
R539	1	1	1	1	GD05473140	47KΩ
R540	1	1	1	1	GD05472140	4.7KΩ
R541	1	1	1	1	GD05562140	5.6KΩ
R542	1	1	1	1	GD05331140	330Ω
R543	1	1	1	1	GD05182140	1.8KΩ
R544	1	1	1	1	GD05331140	330Ω
R545	1	1	1	1	GD05182140	1.8KΩ
R546	1	1	1	1	GD05122140	1.2KΩ
R547	1	1	1	1	GD05182140	1.8KΩ
R548	1	1	1	1	GD05152140	1.5KΩ
R549	1	1	1	1	GD05103140	10KΩ
R550	1	1	1	1	GD05472140	4.7KΩ
R577	1	1	1	1	GD05273140	27KΩ
R578	1	1	1	1	GD05273140	27KΩ
R579	1	1	1	1	GD05273140	27KΩ

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
R551	1	1	1	1	GD05472140	4.7KΩ
R552	1	1	1	1	GD05472140	4.7KΩ
R553	1	1	1	1	GD05331140	330Ω
R554	1	1	1	1	GD05103140	10KΩ
R555	1	1	1	1	GD05103140	10KΩ
R556	1	1	1	1	GD05103140	10KΩ
R557	1	1	1	1	GD05223140	22KΩ
R558	1	1	1	1	GD05222140	2.2KΩ
R559	1	1	1	1	GD05101140	100Ω
R560	1	1	1	1	GD05103140	10KΩ
R561	1	1	1	1	GD05101140	100Ω
R562	1	1	1	1	GD05103140	10KΩ
R563	1	1	1	1	GD05473140	47KΩ
R564	1	1	1	1	GD05472140	4.7KΩ
R565	1	1	1	1	GD05332140	3.3KΩ
R566	1	1	1	1	GD05473140	47KΩ
R567	1	1	1	1	GD05472140	4.7KΩ
R568	1	1	1	1	GD05472140	4.7KΩ
R569	1	1	1	1	GD05223140	22KΩ
R570	1	1	1	1	GD05122140	1.2KΩ
R571	1	1	1	1	GD05122140	1.2KΩ
R572	1	1	1	1	GG05102120	1KΩ ½W
R573	1	1	1	1	GD05331140	330Ω
R574	1	1	1	1	GA05271010	270Ω 1W
R575	1	1	1	1	GA05100010	10Ω 1W
R576	1	1	1	1	GD05472140	4.7KΩ
R580	1	1	1	1	GD05822140	8.2KΩ
						P500-SEMICONDUCTORS
Q501	1	1	1	1	HC10004110	IC SN7000
Q502	1	1	1	1	HC10016110	IC SN7401
Q503	1	1	1	1	HC10016110	IC SN7401
Q504	1	1	1	1	HC10006110	IC SN7404
Q505	1	1	1	1	HC10008200	IC M54410P
Q506	1	1	1	1	HD20011050	Diode 1S1555
Q507	1	1	1	1	HD20011050	Diode 1S1555
Q510	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q511	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q512	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q513	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q514	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q515	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q516	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q517	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q518	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q519	1	1	1	1	HT320601R0	Transistor 2SC2060(R)
Q520	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q521	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q522	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q523	1	1	1	1	HT106841R0	Transistor 2SA684(R)
Q524	1	1	1	1	HT106841R0	Transistor 2SA684(R)
Q525	1	1	1	1	HT320601R0	Transistor 2SC2060(R)

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australi

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
Q526	1	1	1	1	HT320601R0	Transistor 2SC2060(R)
Q527	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q528	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q529	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q530	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q531	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q532	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q533	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q534	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q535	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q536	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q537	1	1	1	1	HT320601R0	Transistor 2SC2060(R)
Q538	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q539	1	1	1	1	HT320601R0	Transistor 2SC2060(R)
Q540	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q541	1	1	1	1	HT320601R0	Transistor 2SC2060(R)
Q542	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q543	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q544	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q545	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q546	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q547	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q548	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q549	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q550	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q551	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q552	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q553	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q554	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q555	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
⚠Q556	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q557	1	1	1	1	HT320601R0	Transistor 2SC2060(R)
⚠Q558	1	1	1	1	HT403131E0	Transistor 2SD313(E)
Q566	1	1	1	1	HD20011050	Diode 1S1555
Q567	1	1	1	1	HD20011050	Diode 1S1555
Q568	1	1	1	1	HD30029090	Zener WZ090
Q569	1	1	1	1	HD20011050	Diode 1S1555
Q570	1	1	1	1	HD20011050	Diode 1S1555
Q571	1	1	1	1	HD20011050	Diode 1S1555
Q572	1	1	1	1	HD20011050	Diode 1S1555
Q573	1	1	1	1	HD20011050	Diode 1S1555
Q574	1	1	1	1	HD20011050	Diode 1S1555
Q575	1	1	1	1	HD20011050	Diode 1S1555
Q576	1	1	1	1	HD20011050	Diode 1S1555
Q577	1	1	1	1	HD20011050	Diode 1S1555
Q578	1	1	1	1	HD20011050	Diode 1S1555
Q579	1	1	1	1	HD20011050	Diode 1S1555
Q580	1	1	1	1	HD20011050	Diode 1S1555
Q581	1	1	1	1	HD20011050	Diode 1S1555
Q582	1	1	1	1	HV00003120	Varistor MV13

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
Q583	1	1	1	1	HD20011050	Diode 1S1555
Q584	1	1	1	1	HD20011050	Diode 1S1555
Q585	1	1	1	1	HD10001010	Diode 1N34A
Q586	1	1	1	1	HD20011050	Diode 1S1555
Q587	1	1	1	1	HD20011050	Diode 1S1555
Q588	1	1	1	1	HD20011050	Diode 1S1555
Q589	1	1	1	1	HD20011050	Diode 1S1555
Q590	1	1	1	1	HD20011050	Diode 1S1555
Q591	1	1	1	1	HD20011050	Diode 1S1555
Q592	1	1	1	1	HD20011050	Diode 1S1555
Q593	1	1	1	1	HD20011050	Diode 1S1555
Q594	1	1	1	1	HD20011050	Diode 1S1555
Q595	1	1	1	1	HD20011050	Diode 1S1555
Q596	1	1	1	1	HD20011050	Diode 1S1555
Q597	1	1	1	1	HD30013060	Zener RD11EB3
Q598	1	1	1	1	HD30014060	Zener RD24EB2
Q599	1	1	1	1	HD20011050	Diode 1S1555
Q600	1	1	1	1	HD20011050	Diode 1S1555
Q601	1	1	1	1	HD20011050	Diode 1S1555
Q602	1	1	1	1	HD20011050	Diode 1S1555
Q603	1	1	1	1	HD30015060	Zener RD5.6EB2
Q604	1	1	1	1	HD20011050	Diode 1S1555
Q605	1	1	1	1	HD20011050	Diode IS155
Q606	1	1	1	1	HD20011050	Diode IS155
						P590-LOGIC SWITCH CIRCUIT BOARD
P590	1	1	1	1	YH42791310	P.W. Board, Logic Switch
	1	1	1	1	ZZ42781310	P.W. Board Assembly
						P590-L.E.D.
Q591	1	1	1	1	HI10015020	L.E.D. LN317GP, Play
Q592	1	1	1	1	HI10016020	L.E.D. LN417YP, Pause
Q593	1	1	1	1	HI10014020	L.E.D. LN217RP, Rec
						P590-SWITCHES
S591	1	1	1	1	SK02010020	Keyboard Switch, Rew
S592	1	1	1	1	SK02010020	Keyboard Switch, Stop
S593	1	1	1	1	SK02010020	Keyboard Switch, FF
S594	1	1	1	1	SK02010020	Keyboard Switch, Play
S595	1	1	1	1	SK02010020	Keyboard Switch, Pause
S596	1	1	1	1	SK02010020	Keyboard Switch, Rec

- (U): for U.S.A.
- (C): for Canada
- (N): for Europe
- (A): for Australia

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
						P591-MECHA STOP CIRCUIT BOARD
P591	1	1	1	1	YH42791320	P.W. Board, Mecha Stop
	1	1	1	1	ZZ42781320	P.W. Board Assembly
S597	1	1	1	1	SP01010350	Push Switch, Stop Touch
						P592-MECHA STOP CIRCUIT BOARD
P592	1	1	1	1	YH42791330	P.W. Board, Mecha Stop
	1	1	1	1	ZZ42781330	P.W. Board Assembly
S598	1	1	1	1	SP01010350	Push Switch, Stop Touch
						P593-REMOTE CIRCUIT BOARD
P593	1	1	1	1	YK42781550	P.W. Board, Remote
	1	1	1	1	ZZ42781550	P.W. Board Assembly
J701	1	1	1	1	YJ90000220	Jack, (9P)
						P600-LED METER CIRCUIT BOARD
P600	1	1	1	1	YK42762210	P.W. Board, LED Meter
	1	1	1	1	ZZ42782210	P.W. Board Assembly
						P600-CAPACITORS
C601	1	1	1	1	EA22505030	Elect 2.2μF 50V
C602	1	1	1	1	EA10602530	Elect 10μF 25V
C603	1	1	1	1	DD15470370	Ceramic 47pF ±5%
C604	1	1	1	1	EA10505030	Elect 1μF 50V
C605	1	1	1	1	EA10505030	Elect 1μF 50V
C606	1	1	1	1	EA10702530	Elect 100μF 25V
C621	1	1	1	1	EA22505030	Elect 2.2μF 50V
C622	1	1	1	1	EA10602530	Elect 10μF 25V
C623	1	1	1	1	DD15470370	Ceramic 47pF ±5%
C624	1	1	1	1	EA10505030	Elect 1μF 50V
C625	1	1	1	1	EA10505030	Elect 1μF 50V
C626	1	1	1	1	EA10702530	Elect 100 F 25V
C641	1	1	1	1	EA33601630	Elect 33μF 16V

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
						P600-RESISTORS (All Resistors are ±5% & ¼W)
R601	1	1	1	1	GD05103140	10KΩ
R602	1	1	1	1	RA03020030	3KΩ Trimming
R603	1	1	1	1	GD05392140	3.9KΩ
R604	1	1	1	1	GD05123140	12KΩ
R605	1	1	1	1	GA05681010	680Ω 1W
R606	1	1	1	1	GD05104140	100KΩ
R607	1	1	1	1	GD05102140	1KΩ
R608	1	1	1	1	GD05562140	5.6KΩ
⚠ R609	1	1	1	1	GD05105140	1MΩ
R610	1	1	1	1	RA05030090	50KΩ Trimming
R621	1	1	1	1	GD05103140	10KΩ
R622	1	1	1	1	RA03020030	3KΩ Trimming
R623	1	1	1	1	GD05392140	3.9KΩ
R624	1	1	1	1	GD05123140	12KΩ
R625	1	1	1	1	GA05681010	680Ω 1W
R626	1	1	1	1	GD05104140	100KΩ
R627	1	1	1	1	GD05102140	1KΩ
R628	1	1	1	1	GD05562140	5.6KΩ
R629	1	1	1	1	GD05105140	1MΩ
R630	1	1	1	1	RA05030090	50KΩ Trimming
R642	1	1	1	1	GG05821140	820Ω
R643	1	1	1	1	GD05223140	22KΩ
R644	1	1	1	1	GA05181010	180Ω 1W
R645	1	1	1	1	GG05330140	33Ω
						P600-SEMICONDUCTORS
Q601	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q602	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q603	1	1	1	1	HD10001010	Diode 1N34A
Q604	1	1	1	1	HD10001010	Diode 1N34A
Q605	1	1	1	1	HD30031090	Zener WZ081
Q621	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q622	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q623	1	1	1	1	HD10001010	Diode 1N34A
Q624	1	1	1	1	HD10001010	Diode 1N34A
Q625	1	1	1	1	HD30031090	Zener WZ081
Q642	1	1	1	1	HT403131E0	Transistor 2SD313(E)
Q643	1	1	1	1	HT326341S0	Transistor 2SC2634(S)
Q644	1	1	1	1	HD30033090	Zener WZ052

- (U): for U.S.A
- (C): for Canad
- (N): for Europ
- (A): for Austr

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
						P650-LED METER CIRCUIT BOARD
P650	1	1	1	1	YK42762220	P.W. Board, LED Meter
	1	1	1	1	ZZ42782220	P.W. Board Assembly
						P650-RESISTORS (All Resistors are ±5% & ¼W)
R651	1	1	1	1	GD05221140	220Ω
R652	1	1	1	1	GD05221140	220Ω
R653	1	1	1	1	GD05221140	220Ω
R654	1	1	1	1	GD05221140	220Ω
R655	1	1	1	1	GD05221140	220Ω
R656	1	1	1	1	GD05221140	220Ω
R657	1	1	1	1	GD05221140	220Ω
R658	1	1	1	1	GD05221140	220Ω
R659	1	1	1	1	GD05471140	470Ω
R660	1	1	1	1	GD05471140	470Ω
R661	1	1	1	1	GD05471140	470Ω
R662	1	1	1	1	GD05471140	470Ω
R671	1	1	1	1	GD05221140	220Ω
R672	1	1	1	1	GD05221140	220Ω
R673	1	1	1	1	GD05221140	220Ω
R674	1	1	1	1	GD05221140	220Ω
R675	1	1	1	1	GD05221140	220Ω
R676	1	1	1	1	GD05221140	220Ω
R677	1	1	1	1	GD05221140	220Ω
R678	1	1	1	1	GD05221140	220Ω
R679	1	1	1	1	GD05471140	470Ω
R680	1	1	1	1	GD05471140	470Ω
R681	1	1	1	1	GD05471140	470Ω
R682	1	1	1	1	GD05471140	470Ω
						P650-SEMICONDUCTORS
Q651	1	1	1	1	HC10001320	IC IR2418
Q652	1	1	1	1	HI11201320	L.E.D. GL112
Q671	1	1	1	1	HC10001320	IC IR2418
Q672	1	1	1	1	HI11201320	L.E.D. GL112
Q693	1	1	1	1	HI10014020	L.E.D. LN217
						P750-TIMER & MEMORY CIRCUIT BOARD
P750	1	1	1	1	YK42781540	P.W. Board, Timer & Memory
	1	1	1	1	ZZ42781540	P.W. Board Assembly
S751	1	1	1	1	SC04030080	Switch, Timer
S752	1	1	1	1	SC02030110	Switch, Memory
R751	1	1	1	1	GA05182010	Resistor 1.8KΩ±5% 1W

REF. DESIG.	Q'TY U	C	N	A	PART NO.	DESCRIPTION
						P900-FUSE CIRCUIT BOARD
P900			1	1	WF42790020	P.W. Board, Fuse
			1	1	ZZ42788020	P.W. Board Assembly
⚠ F901			1	1	FS10100800	Fuse 1A
⚠ F902			1	1	FS10200800	Fuse 2A
⚠ F903			1	1	FS10080800	Fuse 0.8A
⚠ F904			1	1	FS10140800	Fuse 1.4A
J911 ≀ J914			4	4	YJ08000200	Jack, Fuse Clip
J916 ≀ J919			4	4	YJ08000200	Jack, Fuse Clip

(W01-99)	Assembly and Wiring
(T01-99)	Adjustment
(X01-00)	Correction

MODEL SD 6000 TECHNICAL SPECIFICATIONS

[FOR U.S.A. & CANADA]

Type	Front loading 4-Track, 2-Channel Stereo Record/Playback System	
Tape	Phillips-type Compact Cassette	
Tape Speeds	High: 3-3/4 ips (9.52 cm/sec)	Standard: 1-7/8 ips (4.76 cm/sec)
Motor Drive System	DC Servo Motor (x2) with Single Capstan Drive	
Heads	2 Head System Erase Head: Ferrite Record/Play Head: Sendust Alloy	
Level Indicators	Left and Right LED Peak Level Displays	
Noise Reduction System	Dolby NR	
Semiconductors		
Transistors	93	
IC's	9	
Diodes	61	
LED's	7	
Wow and Fluter (WRMS)	High Speed 0.03%	Standard Speed 0.05%
Frequency Response (Overall, −20 dB below 0 VU)		
Metal	30 Hz ~ 22 kHz (±3 dB)	30 Hz ~ 19 kHz (±3 dB)
Ferrichrome (FeCr)	30 Hz ~ 21 kHz (±3 dB)	30 Hz ~ 17 kHz (±3 dB)
Chromium Dioxide (CrO_2)	30 Hz ~ 21 kHz (±3 dB)	30 Hz ~ 17 kHz (±3 dB)
Ferric (Normal)	30 Hz ~ 18 kHz (±3 dB)	30 Hz ~ 15 kHz (±3 dB)
Signal-to-Noise Ratio		
Dolby ON	71 dB (over 5 kHz)	69 dB (over 5 kHz)
Dolby OFF	61 dB	58 dB
Outputs		
Line: Level	650 mV	
Impedance	1.2 kΩ	
Headphone: Level	43 mV	
Impedance	150 Ω	
Inputs (Level at 0 VU)		
Line: Sensitivity	−23 dBV (70 mV)	
Impedance	82 kΩ	
Mic: Sensitivity	−72 dBV (0.25 mV)	
Impedance	Low Z	
Fast Rewind Time	Approx. 85 sec. (C-60 cassette)	
Fast Forward Time	Approx. 85 sec. (C-60 cassette)	
Bias Frequency	100 kHz	
Power Requirements	120 V AC, 60 Hz	
Power Consumption	25 Watts	
Dimensions (W x H x D)	16-3/8 in. x 5-3/4 in. x 11-5/8 in. (41.6 cm) x (14.6 cm) x (29.5 cm)	
Net Weight	19 lbs. 13 ozs. (9 kg)	

NOTES:

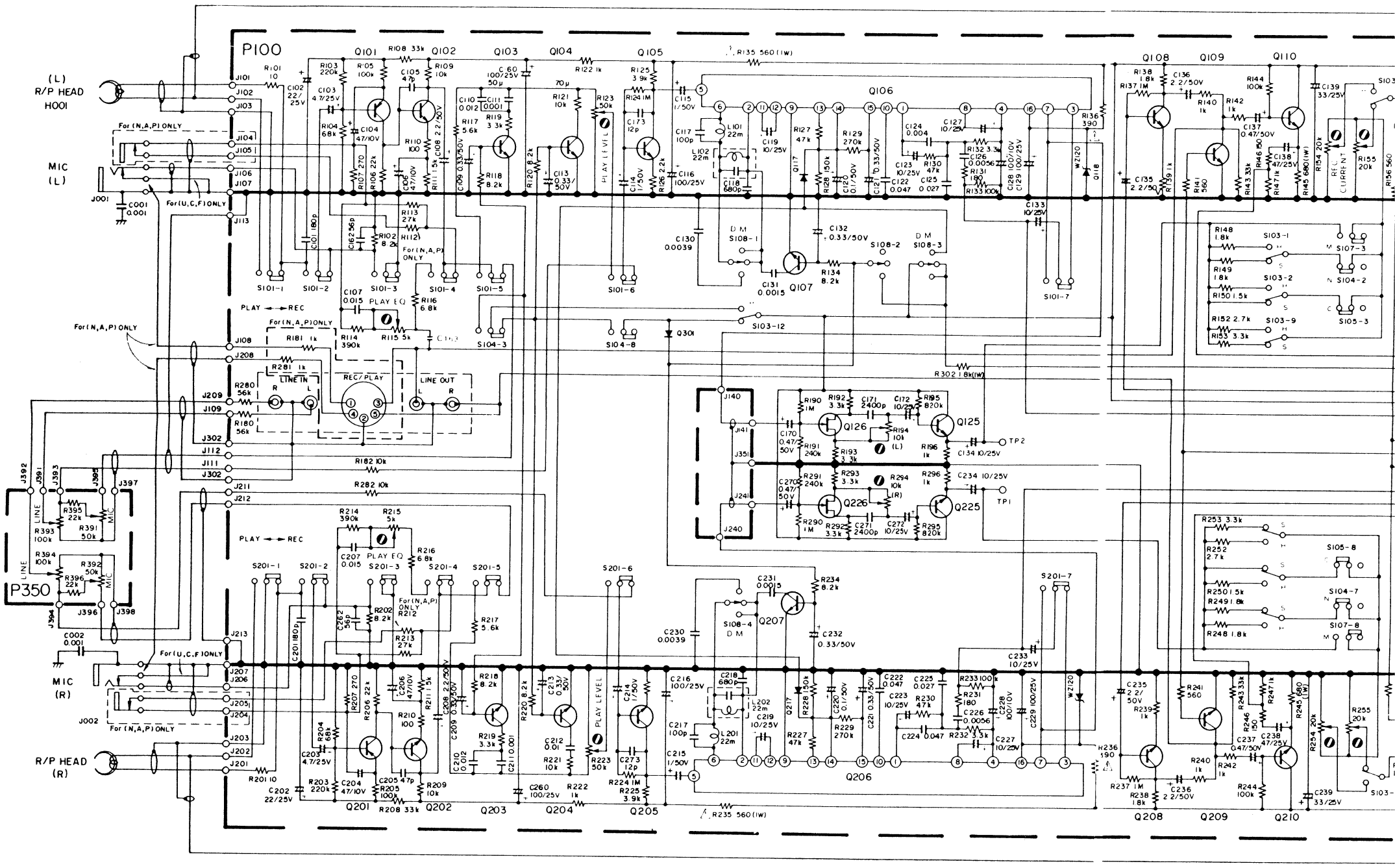
1. Reference recording level: 0 VU (160 nW/M)
2. Reference frequency: 315 Hz
3. Wow and flutter measured at: 3.0 kHz NAB WGTD RMS
4. Frequency response measured at: 20 dB below 0 VU recording level reference (Dolby off)
5. S/N ratio measured at the recorded level equivalent to 3% THD, IEC "A" WGTD, 70 μSec. EQ.
6. Recording reference tapes:
   Normal: TDK AC 211
   CrO_2 : TDK AC 511
   FeCr: Sony CS 30
   Metal: 3M MetaFine

[FOR EUROPE]

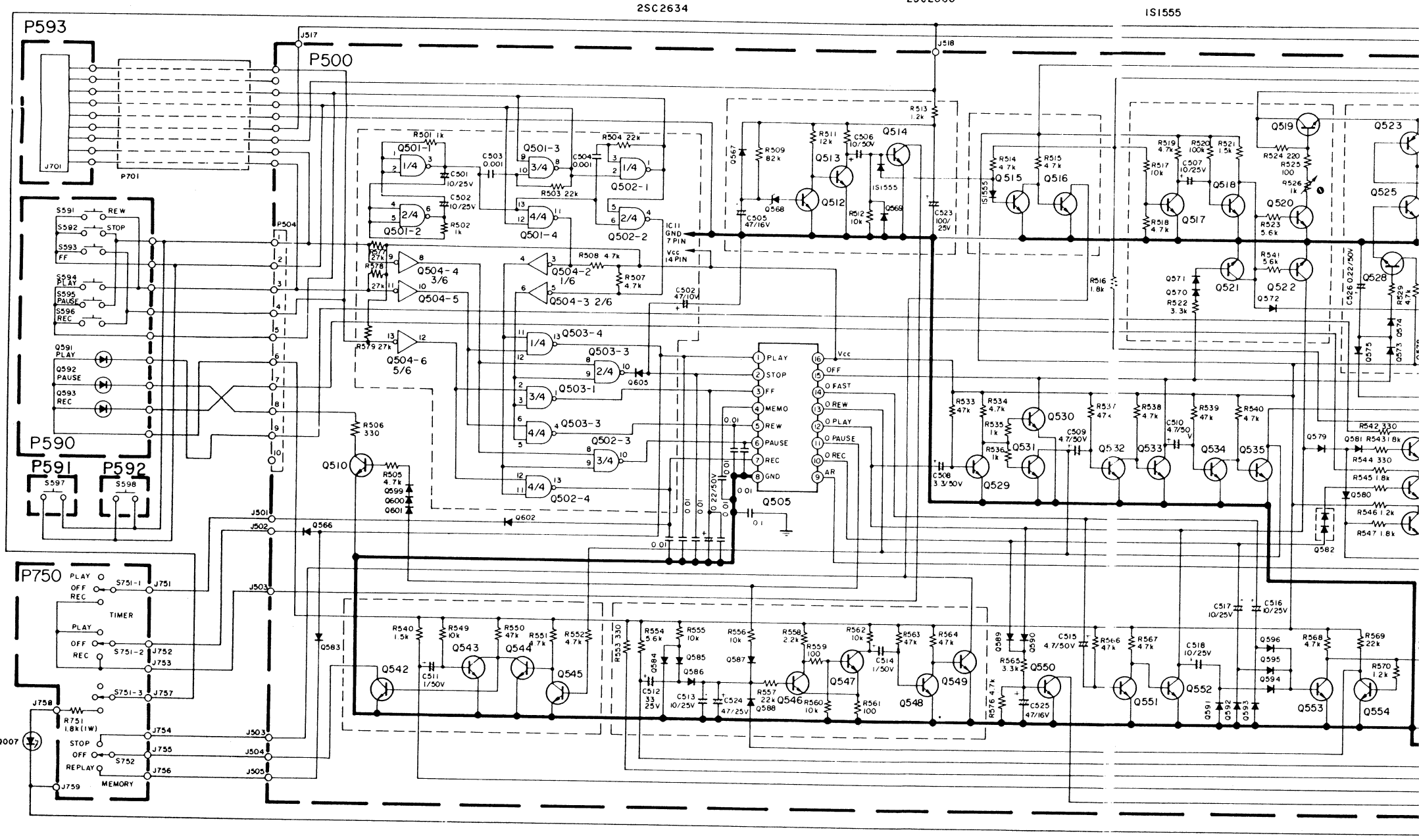
Style		Direct Load
Tape Drive System		Single Capstan Drive
Cartridge		Philips type compact cassette
Track System		Compatible Stereo 4-track 2-channel
Tape Speed		4.75 cm/sec. & 9.5 cm/sec.
Heads		2 Head System
Composition		Rec/Play: Sendust Alloy Erase: Ferrite
Motor		DC Servo Controlled Motor x 2
Meters		LED Peak x 2
Recording System		AC Bias
Erasing System		AC Erase
Semiconductor Complement		
Transistors		93
Diodes		61
IC's		9
LED's		7
Overall Frequency Response (Dolby off):	**Tape Speed: at 20 dB for 4.75 cm/sec.**	**Tape Speed: at 10 dB for 9.5 cm/sec.**
Ferric Oxide Tape	30 Hz ~ 15 kHz (±3 dB)	30 Hz ~ 18 kHz (±3 dB)
CrO_2 Tape	30 Hz ~ 16 kHz (±3 dB)	30 Hz ~ 18.5 kHz (±3 dB)
Fe-Cr Tape	30 Hz ~ 17 kHz (±3 dB)	30 Hz ~ 19 kHz (±3 dB)
Metal Tape	30 Hz ~ 17.5 kHz (±3 dB)	30 Hz ~ 20 kHz (±3 dB)
Total Harmonic Distortion		
Ferric Oxide Tape		2%
CrO_2 Tape		2.5%
Fe-Cr Tape		2.5%
Metal		2.5%
	Tape Speed: 4.75 cm/sec.	**Tape Speed: 9.5 cm/sec.**
Wow and Flutter (DIN WTD)	0.12%	0.08%
Fast Rewind Time		60 sec.
Fast Forward Time		60 sec.
AC Line Voltage		220 V AC, 50 Hz (E/N versions are featuring an external voltage selector for use on 110/220 V. T/A versions 220/240 V AC, 50/60 Hz.)
Power Consumption		45 W
Dimensions (W x H x D)		416 mm x 146 mm x 243 mm
Weight		8 kg

SCHEMATIC DIAGRAM

Q101, Q201	Q102 ~ Q105, Q107 ~ Q116 Q202 ~ Q205, Q207 ~ Q216	Q125, Q225, Q307, Q601 Q602, Q621, Q622, Q693	Q106, Q206	Q117, Q217, Q301, Q304 Q306, Q428, Q429	Q126, Q226	Q302, Q309	Q305, Q644	Q401, Q411, Q413	Q402, Q412, Q414
2SA1127	2SC2634	2SC2634	LM1011	1S1555	2SK30A	2SC945	WZ052	MI-151R	MI-151



Q501	Q502, Q503	Q504	Q505	Q512 ~ Q518, Q520 ~ Q522 Q527 ~ Q536 Q538, Q540 Q542 ~ Q556	Q523, Q524	Q525, Q526, Q537 Q539, Q541, Q557, Q519	Q558	Q566, Q567, Q569 ~ Q581 Q583, Q584, Q586 ~ Q596 Q599 ~ Q602, Q604	Q568	Q58
SN7400	SN7401	SN7404	M54410P	2SC2634	2SA684	2SC2060	2SD313	IS1555	WZ090	MVI



MODEL SD6000

12, Q414	Q403, Q432, Q642 Q303	Q404	Q405	Q409, Q410, Q417	Q425	Q426	Q603, Q623, Q604, Q624	Q605, Q625	Q651, Q671	Q652, Q672	Q693
	2SD313	WZ-210	S4VB	2SC1384	10E1	WZ090	IN34A	WZ081	IR2418	GL112	LN217

SWITCHES

S101-1~9(9-2) : REC/PLAY Lch ON REC POSITION
S201-1~9(9-2) : REC/PLAY Rch ON REC POSITION
S103-1~12(12-2) : SPEED SELECTOR ON 4.8cm/sec POSITION
S104 (10-2) : TAPE SELECTOR NORMAL
S105 (10-2) : TAPE SELECTOR CrO2
S106 (10-2) : TAPE SELECTOR Fe-Cr
S107 (10-2) : TAPE SELECTOR METAL
S108 (4-3) : DOLBY NR/MPX FILTER
S001 : POWER ON/OFF
S002 : REC MUTE
S004 : MUT SWITCH (POWER SWITCH OFF POSITION)

Q582	Q585	Q597	Q598	Q603	Q591	LN317GP
MV13	IN34A	RD12	RD22	RD5-6	Q592	LN417YP
					Q593	LN217RP

Q001 ~ Q003	Q007
10E-1	LN26RP

NOTE ON SAFETY: THE PARTS MARKED WITH ⚠ ARE IMPORTANT PARTS ON THE SAFETY. PLEASE USE THE PARTS HAVING THE DESIGNATED PARTS NUMBER WITHOUT FAIL.